

Journal and

Field Notes

June 1935 - Sep. 1935

Jamaica

Haiti

Dominican Republic



VI-22-35

J

Sailed from N.Y. at noon on United Fruitss. "Tolosa", bound for Jamaica and South America. Equipment includes a new motorcycle & sidecar packed with all collecting equipment, four alcohol tanks, etc.; short-wave radio receiving set; portable typewriter; H.O. charts and maps. Papers include letters from Smithsonian Institution, Pan-American Union, consuls of Cuba, Haiti, Dominican Republic; Special passport with complimentary visas for Gr. Br. & B.W. I., France and possessions, and Haiti. Collecting equipment includes beating net with two extra frames, sweeping net & extra voile, vials, corks, six aspirators, seine, forceps, carpenter tools, cotton, First Aid kit, gasoline lantern, 6 volt - 110 A.C. converter for collecting light, extra storage battery and charger, etc. The party consists of myself and wife - Ruth.

VI-25-35

I

On clothing taken from a trunk we found a single bed bug! Must have been picked up in Washington as boat had just been reconditioned and trunk came straight through by express.

VI-26-35

J

Passed occasional floating bunches of sargassum weed, also numerous flying fish. At 3:15 sighted a tiny point on horizon ahead. At 6:30 passed Navassa Island on port, recognizing the lighthouse as what we had seen earlier. It is 2 by 1 miles, 200 ft. high and flat; of volcanic origin, covered with guano; U.S. possession; should have some traps.



VI-27-35 Entered Kingston at 6 A.M. Ruins of Port Royal on port  
 at the end of the seven mile promontory known as  
 the Palisadoes. This is overgrown with low  
 mangroves. On starboard side is Portland Bight  
 which is an uninviting brushy hill, rather  
 brown in color, and unlike the mountains be-  
 hind Kingston. Immigration authorities gave no  
 trouble when we showed our Smithsonian letter,  
 and Customs passed us automatically after seeing  
 a letter from the Colonial Secretary to U.S. Consul.  
 Dock crowded with negroes, two-wheel trucks, baggage, etc.  
 Boys very anxious to seem to help so they can ask for  
 pay. Customs examined closely baggage of all negroes.

VII-1-35 25 miles east of Kingston along coast. Occasional  
 bananas and coconuts. Two large salt lakes separated  
 from ocean by mangrove dunes. Streams mostly dry.  
 A fairly recently burned area at 20 miles may be a  
 good collecting place. This area seems to be rather  
 dry, - may be due to extended drought.

I I No real collecting yet. Two weevils in grape-nuts at  
 the hotel, - didn't keep them. Several June-beetles  
 around lights, also several small things around  
 lights at dinner table. (Mayr BH)

○ ○ An interesting bird frequents the lawn at the house.  
 It is about the size of a small towhee, with long  
 tail, carried by the male at a sharp angle with

the body. Underneath it is a dull white, throughout;  
 with a bill like a robin; and with white  
 spots on the wings, some visible with wings  
 closed. One wing is crossed over above the base  
 of the tail, - the other projects down beneath.  
 While searching for some sort of food in the grass,  
 it hops about more jauntily than a robin,  
 seemingly finding its food by sight rather  
 than by hearing. Frequently between hops  
 it raises the wings slightly or opens them  
 full once or twice. Its call is loud and clear,  
 but not a song. It makes also a short tramous cry.

VII-2-35

#### Station 1.

Hope Gardens, just outside of Kingston on the north.  
 A 1600-acre government experimental farm, contain-  
 ing samples of most of the plants of the island.  
 Parts are landscaped, others cultivated or used  
 for pasturage. Is situated next to the foothills  
 at perhaps 200 feet elevation, and gets a  
 little more rain than Kingston.

This farm is certain to be a fine collecting  
 place. The government entomologist, Mr. W. H.  
 Edwards and the Director of Agriculture, Mr.  
 Barnes, extended a welcome and free  
 use of all facilities. Also assurance of  
 right to collect on the farm and on all



VII-3-35  
I I  
Sta. 1. A.  
Sta. 1. B.  
other government property. Mr. Edwards in-  
vited us to his home on Friday at week tail hours.  
To Hope Gardens (Sta. 1) in A. M. Followed aqueduct  
up to headgate. Found a few <sup>(5)</sup> Staphs  
and some Nitidulids under fragments of mangos.  
In cow dung found some small Staphs and many  
Aphodius and larger Scarabs, - also some Ceryon  
and Histerids. Collected only with forceps. In  
afternoon went up ~~road~~ to Hope River road to  
Gordontown and Mt. Industry.

### Station 2.

Bridge over a side creek on hillside overlook-  
ing Mt. Industry, 10 miles north by east of Kingston.

I I Sta. 2. A.  
One or two <sup>(5)</sup> Staphs and several Carabids under  
pepples. Many Tyridids seen on surface of  
the small pools. Will stop there again.

### Station 3.

River bottom of Hope River below Papine,  
at east end of Hope Gardens. (1 Staph)

Found practically nothing here, under stones  
or on mud flat. Will try again - harder.

At sea each day we feed crumbs to the  
little lizards among the plants around the  
veranda. We have seen as many as five at  
one time, - sizes from three inches over all  
to about seven inches. There seem to be

at least three or four species. The largest  
ones are more conspicuously marked and  
frequently raise the fore part of the body  
and extrude a large flat pouch from the  
underside of the head and neck. It appears  
to be thin pinkish translucent skin stretched  
over a stiff but curved and flexible  
support. This pouch may be about one  
inch vertically by one and one quarter hori-  
zontally and projects forward under the  
front of the head. It appears to roll out  
from the back to front. It almost appears  
to be for display as they come out into  
a conspicuous position and then perform  
six or eight times in succession.

VII-4-35

J J  
Stores all closed this afternoon, but only because  
they missed their regular Wednesday afternoon  
holiday yesterday. A special boat-load of  
tourists, - an M. D. convention, was in town.  
It's a relief not to have a lot of firecrackers  
and holiday motorists around.

I I  
Sta. 1. C.

143 Staphs

52 Staphs

Sta. 1. D.

Took siene and aspirator to Hope Gardens in A. M.  
and worked soil under cow dung. Got large  
numbers of same things as yesterday, but little  
else. Ants always plentiful. Very little except Niti-  
dulids found on rotten mangoes. One Calixys etc.



Examined a freshly cut though dead tree expecting to find things under bark or chips. No luck.

Went to mouth of Hope River, seven miles north of Kingston. Wide river bottom yielded only one Carabid and one Staph in two hours collecting.

Everything near the coast is dry and hot.

Along the river saw two herons. They were about the height of a night heron with smaller bodies and carriage similar to Great Blue Heron. One was shiny blue-black throughout the other about equal marked with black and white in irregular angular spots.

The hills come right down to the ocean along this section and remind me of the previously noticed fact that most of the slopes are exceptionally steep and appear to be held in place chiefly by the vegetation. Frequently a hillside is quite precipitous, quite impossible to climb under ordinary conditions.

The narrow-bottomed valleys and steep-sided ravines also indicate the youth of the island - physiographically speaking.

Along the road around the bay is a group of about twenty-five convicts working in a gravel pit. About ten uniformed negro guards stand about but are armed only with sticks.

Several potted vines with small red campanulate flowers on the veranda attract a bird which looks much like a very large hummingbird. It hovers in the same way and gets to the bottom of the matter with its inch-and-a-half bill. The wing movement is slow enough to be almost visible, while the under side of the tail is the only part which departs from the dark brown color, - it is somewhat reddish.

Our lizard-friends have taken to croaking in the evening. Usually four short croaks and then silence for a moment. They seem to talk back and forth across the veranda.

Mr. Edwards allowed me to examine the small collection of insects at the laboratory. In every family I looked at only one or two species were represented. Either too much of the material had been taken away or else there has never been any collecting done. Even the economic families were very poorly represented. All the Schmidt boxes were lined with paraffine, - evidently a non-corrosive bottom is difficult to find in this damp climate. Many specimens have been used to make up demonstration cases of pests, - all very crudely done.



Station 4. Number 9, Norman Road, Kingston.  
Insects attracted to lights, etc.

In Hope Gardens found one Staph and one Pseudo-  
scorpion under bark of dead tree. Also white egg.

An extra warm day. Can't be comfortable with  
any clothes on. Even the residents complain of it.  
There is quite a bit of breeze, however. Went to  
see the American consul, - Mr. Armstrong. He was  
very nice but sorry we couldn't have been at a  
cocktail party last night for all Americans here.

A wide variety of native ferns are abundant in  
the upland valleys, and also in cultivation in  
the city. The maiden-hair and fish-tail ferns  
are particularly striking, with numerous others  
of a more conventional type, frequently with  
very long fronds. On the hillsides near here  
are many examples of a plant very similar  
to the Yucca, with a central stem rising  
ten or twelve feet. Have seen no flowers. At this  
season any large flowers seem scarce except in  
cultivated gardens. Hope River, which leaves the  
mountains as a fair sized creek, never reaches the  
ocean, but sinks into the gravel and disappears.  
Of course in the wetter season it flows on  
through a large channel.

In evening went to cocktail party at Hope Gardens,

given by Mr. W. H. Edwards. Met two young doctors  
working for Yawes Commission of Rockefeller Foun-  
dation. Names were Saunders and ~~Coates~~<sup>Kumpp</sup>. Also  
met government chemist (& geologist), - Mr. Barnett.  
Director of Agriculture, Mr. Barnes, also present.

Moon was in first quarter, Venus in West, and  
Jupiter in east. A very red star may have been  
Mars. Could see constellations of Lyra, Scorpio,  
Orion, Ursa major, Ursa minor, but couldn't see the  
Southern Cross because of the trees.

Collected by sweeping in the pastures at Hope  
Gardens. In two hours got about ten tiny beetles,  
many varied spiders, many leaf-hoppers, and  
quite a few bugs. The scarcity of beetles is  
very noticeable. What I got were mostly *Seymouria*  
and *Brachyacantha*; two weevils, and one or  
two other very small things. Was quite dis-  
couraged by this poor showing. Perhaps it  
would have been better somewhere else. I'll  
try in the banana walks and around the  
cultivated flowers. Found a small Termi-  
darium that will be sacrificed in the search  
for Staphs! Was again struck with the  
steep slopes of the hills and the coarseness and  
rockiness of the soil. Saw a bird very much  
like a turtle-dove but only about  $\frac{1}{2}$  as large.



Sta. 2. B.

On afternoon went back to Station 2 to collect  
 Gyrimids. They are quite abundant whirling  
 about on the water, but the banks are over-  
 hung by bushes so it's hard to catch them  
 with a hand dipper. When once the pool is  
 really disturbed they all dive to the bottom.  
 However, I got five live, also one back-swimmer.  
 There are many large spider-webs criss-crossed  
 over the pool, with many-colored spiders.  
 The bird on the lawn, mentioned on pages 2 and  
 3, has more of a call than I thought. It can  
 sing almost like a canary though with less  
 variety and less range. Its tail is lined with  
 a white stripe on each side above when spread.  
 Tried sweeping along the road, near bananas,  
 at Station 2, but got only a little more  
 quantity than ~~at~~ <sup>Put in with Stough.</sup> in the Gardens. There were  
 much less spiders. Found one small black  
 leaf-hopper with curved horns on the side of  
 his head. Throughout the pastures ~~at~~ the Hope  
 Gardens are many mango trees. At this season  
 they are covered with fruit and the ground  
 beneath is spotted with the fallen ones.  
 One continually hears the plop plop of ones  
 falling all around. They seem to ripen very  
 rapidly after falling. During the mango

season the natives practically live on the fruit  
 which can be had for merely the picking-up.  
 All the roads and paths are strewn with  
 the pits and half-eaten parts. These are  
 busily frequented by large yellow Vespid  
 wasps and sometimes by a large yellow bee.  
 There are also numerous Nitidulids and a very  
 few Staphs, - including Tachyporinae.  
 Mr. Barnett told me last night that though the  
 seasons here are ill-defined, the insects, and  
 to some extent the plants, are definitely and  
 clearly periodic. Furthermore this is the season  
 when insects are least abundant. I would have  
 supposed that through many generations the broods  
 would have come to overlap so that no periodicity  
 could be noticed. It seems I was wrong, and that  
 a return trip here in February and March or in  
 October would be very desirable to obtain a  
 complete collection. Ants are exceedingly common  
 here. They are mostly small black ones of two or  
 three different kinds, with occasionally a lot  
 of smaller red ones. I have collected none,  
 under the theory that isolated specimens are  
 practically worthless. When I come across nests  
 I will get a bottle full of each kind, trying  
 to get all the castes and developmental stages.



One of the chief differences that I notice between this country and Panama is that I never see any insects on the plants. In Panama there were always beetles, bugs, large flies, dragon flies, spiders, etc. in conspicuous position on the plants along the paths. About half of our sweeping was scooping in the particular specimens that we could see as we walked along. Here these large insects are entirely lacking so far and I seldom see anything except butterflies and moths and wasps. Dragonflies are occasional and small flies thick sometimes.

Practically every negro woman on the street or road has a load of some sort on her head. They seem to do all the carrying of groceries, articles for sale, laundry, etc. and I saw a group of them carrying stones for road building up from the river bottoms. Two stones about eight inches square was the load, the top one having to be balanced by hand. Both women and men incessantly hawk their wares and services on the streets, including fruits & vegetables, fish, live poultry, ice cream, etc., etc., fire-wood. I've never seen them make any sales!

VII-8-35

J J

Started out this morning with complete outfit for Hope Gardens but was caught in the rain. In the ten minutes coming home I got soaked through. The day seems to be given up to intermittent showers. If it clears off at all this evening I shall try a little light collecting. This is the first rain in several weeks.

I I

The light left out from 7:00 to 8:15 P.M. attracted nothing but small moths, while one June-beetle came to the porch light and was captured! The light stopped, I don't know why. Hope it didn't burn out a fuse.

VII-9-35

J J

BJ BJ

Photo # 3  
#4

Spent the day visiting the Bonelli at the large Laymanas Estate, about 10 miles west of Kingston on the Spanish Town Road. Oscar, a taxi driver took us out for eight shillings (we gave him ten). On the way we passed ~~the~~ a particularly fine example of cotton tree. The trunk must have been twelve feet in diameter but from the ground up twenty feet are large "flying buttress" roots, making the base of the tree twenty-five or thirty feet in diameter. The branches start at about twenty feet and extend horizontally for thirty feet or so. This is apparently a particularly large tree, though we saw many others almost as large.



Caymanas Estates, Inc. is a large company formed by the amalgamation of six or eight plantations under one manager, Mr. Bonell, and a board of trustees. The former owners now own shares but control is held by a very large landholder, Mr. Crum-Ewing. The Estates are primarily for sugarcane growing but has many acres in bananas. They must cover at least a thousand acres and employ several hundred men. A rather small sugar mill is in operation but a new and modern mill is being constructed to replace it. We went to the New Factory Lab where we were met by Miss Marjorie Bonell. We looked over the new plant, met Mr. Bonell, and then drove up to the house on a hill overlooking the Estates for lunch with Mrs. Bonell & Marjorie. About the house we saw agave plants (maguey) in bloom and also a fine bush of croton. This has spear-shaped leaves about six inches long and brilliantly colored with green yellow, ochre, and reds. The hill on which is the house is of ~~very~~ volcanic rock, very vesicular and apparently not extrusive. After lunch Marjorie drove us down to the old mill and showed us through it. Then

we drove around through the cane fields and banana walks in search for likely spots for future collecting. We saw cane fields of all ages from newly planted to harvested and cleared. The fields are planted from cuttings ~~from the previous growth, these set in rows between the previous ones. The latter are then plowed under.~~ In 12 to 18 months the cane is six to ten feet high and ready to harvest. After the stalks are cut off near the ground, the refuse and stubble is burned. The cane then comes up again from the same roots. The fields are so dense when mature as to be impenetrable except by cutting one way with a machete. The banana walks seem too well kept for good collecting, - the undergrowth is kept down and all refuse plowed under. We spotted several areas where a few plants have "escaped" along the edges and where other plants have been allowed to thrive. We forded the Rio Cobre and noticed some promising-looking spots along it. After returning to the house for tea we dropped Marjorie at the mill and Mrs. Bonell took us eastward along a road at the edge of the hills. It winds



around between bush and marshland or pasture, with a few bananas and coconuts. It would be good for prying, beating and sweeping. In the fields we saw many of the Jamaica Blackbirds, about the size of a magpie and with a thick curved upper bill. On the hill we saw many of the small Ground-doves, similar to those seen in Hope Gardens, two Yellow Bellies - a larger dove, but didn't see any Blue Pigeons. In the fields we saw also one Jamaica Canary, brilliant yellow throughout and larger than an ordinary canary. Near the Works Mrs. Bonell showed us a large pile of bones, and several large pile of coconut husks. Through the entire day we saw few insects and no beetles, though several places looked like good spots for collecting later on. Mosquitoes were very bad along the Rio Cobre, but not in evidence elsewhere. The bird which I have described from the lawn here is a nightingale. I underrated its song at first, but still notice the short range. They seem to be quite abundant. Large buzzards are common everywhere, soaring around and cleaning up all carrion. They all called here "crows."

VII-10-35

I Sta. I. G.

Photo #5  
#6

I I

To Hope Gardens in the morning to open a small hermitarium on a hill. Found all stages except the queen, but no guests. A large number of tiny black ants seemed to be swarming in one of the tunnels and over the egg masses. Also some large red ants (looking like leaf-cutting ants) were at one corner of the nest as if attacking it. Found also a rotten palm stem with a nest of the large red ants. Again could find no guests. A rubbish heap with piles of rotting mangoes showed lots of *Meloidae* but no *Staph.* A little sweeping along a path yielded no beetles and little else. I stopped at the laboratory to see Mr. Edwards. He gave me a half gallon of alcohol, and invited us to ride to Morant Bay this afternoon. This is a nice ride, - 30 miles, but the country is pretty dry. Stopped to inspect some projects on drying coconut palms. The soil is very poor but cultivation or fertilization makes a great deal of difference. Found a lot of myriapods under stones and logs but not much else. Stopped along the beach to search under rubbish. Only a very small amount of seaweed and no insects were found. Hadn't gone prepared for collecting.



VII-11-35

Station 5. ~~Atto~~

About 3 miles west of Morant Bay, in a coconut walk. (VII-10-35 only.)

Station 6.

Caymanas Estates, Inc., 7 to 9 miles west of Kingston on Spanish Town Road. Banana, sugarcane, pasture, marsh, river roads, swamps, coconuts, and barren hills.

In A.M. tried sweeping and beating along the Rio Cobre near cane and bananas. Found only a little more than previously. Then tried same along east bank of Ferry River, finding quite a series of a green and red Chrysomelid and a few weevils. This is considered the same locality and is the best I've found so far.

In P.M. went to see American Consul, and to get a package without paying duty. It worked.

VII-12-35

Drove over the mountains toward Annotto Bay.

At Honey Hill crossed the divide and then followed down the Wag Water River.

Station 7. ~~Atto~~

18 miles north of Kingston on road to Annotto Bay. A steep-walled valley with grass and brush mingled with trees, cane, and bananas.

On a fallen tree found a number of small fungi. These were full of Staphylinids. There were

at least two species in quantity and perhaps four or five in all. This is the best lot of Staphylinids I've taken yet. Fast evening I found one small one flying on the veranda. This afternoon Mr. Edwards invited us to go with him by launch to the Palisades at the outer edge of the harbor. He gave me a copy of "Some Soil Types in Jamaica, their origin, formation, and agricultural relationships" by F. Hardy & H. H. Croucher. It contains brief discussions of the geological formations, a rough geologic map, a rainfall map, etc., etc. White limestone predominates in the island, with considerable ~~granite~~ areas of alluvium (old) and conglomerates. Practically no rocks older than Cretaceous occur at surface, though there are Paleozoic granophyres, serpentine, schists, amphibolites, and marbles. Some metamorphics were formed in early Cretaceous. The Blue Mountain Series is Eocene, and consists of coarse conglomerates (derived from igneous material), sandstones, shales, volcanic lavas, and tuffs. The mountains north of Kingston are chiefly formed by a large laccolite of porphyry. Throughout the island are small exposures of a richly fossiliferous Yellow Limestone (the Cambridge Beds). The Blue Mountain Series is considerably folded by Tertiary



mountain-building movements. The White Limestone Series is third. It is over 2000 feet in thickness and covers three-fourths of the surface of the island. They are foraminiferal in origin and are said to have been laid down in very deep water. Drainage in the white limestone areas is largely effected by underground streams that flow through fissures and sink-holes into caverns and subterranean tunnels. The Cockpit Country is so called from the pits and hollows common there. The Coastal Series is fourth. (The White Limestone Series is Upper Eocene and Oligocene). It is Miocene, Pliocene, and Pleistocene. Included are white and buff marls and limestones, soft sandstones, loose sands, coarse gravels, and conglomerates, also calcareous shales (rich in Miocene fossils). The chief topographical features are (1) the interior mountain masses (Blue Mts., east-west in eastern third; Clarendon & Jerusalem Mts. farther west, together forming a central mountain chain with lateral ridges, particularly to the south); (2) an elevated limestone plateau; (3) the coastal cliffs; and (4) a series of low, flat, coastal plains. The plateau region occupies over four-fifths of the area, rising to a height of 3000 feet. The

mountains attain over 7000 feet. The coastal cliffs show several terraces or benches, at elevations ranging between 200 and 2100 feet. The geologic series seems to be as follows:

<u>Recent.</u>	I. Recent Alluvial Formation Recent River Alluvium, Raised Coral Reefs, etc.
<u>Pleistocene.</u>	II. Coastal Series (1) Kingston Formation (Old Alluvium)
<u>Pliocene.</u>	(2) Manchioneal Beds (Marls & fossiliferous limestones, some coral, $\therefore$ shallow water.)
<u>Miocene.</u>	(3) Buff Bay Beds & (4) Bawden Beds. (Calc. shales & marls; fossilif.)
<u>Oligocene.</u>	III. White Limestones Series (Oceanic) (1) Cadre Beds (Brecciated limestones & marls). (2) Montague Beds (Massive white limestone).
<u>Up. Eocene.</u>	(3) Montpelier Beds (Chalky ls. & white marls).
<u>Mid. Eocene.</u>	IV. Blue Mountain Series. (1) Cambridge Beds (Yellow ls., richly fossilif.) (2) Richmond Beds (dark calcareous shales).
<u>Low. Eocene.</u>	(3) Conglomerates, Tuffs, & Limestones
<u>Up. Cretaceous.</u>	V. Basement Series.
<u>Paleozoic.</u>	(1) Igneous Rocks Granophyres & serpentine. (2) Metamorphic Rocks (Cretaceous metamorph.) Schists, amphibolites, & marbles.



The geologic history may be summarized as follows:

(a) two periods of mountain-folding, trending south-east to north-west and east to west respectively; (b) two great epochs of subsidence and contraction of land area, during which the limestones were deposited; and (c) later uniform elevation which added the modern coastal plains.

CE c The rivers differ in the mountainous districts and in the limestone plateau, giving two distinct types of drainage, the one simple and consequent on uplift, the other, mainly underground and having no surface-outlets to the sea. A third, more complicated type of drainage, is a combination of these two, and has originated by the capture of interior-basin streams by consequent streams belonging to the first type. The total number of rivers and streams exceeds one hundred, and many of them are of large dimensions and flow all the year round, exhibiting torrential magnitude during the rainy season.



# GEOLOGICAL PLAN OF JAMAICA

BASED ON THE MAP  
BY  
R. T. HILL, 1898



## INDEX

### GEOLOGICAL FORMATION

	RECENT ALLUVIUM	
	OLD ALLUVIUM	
	MANCHIONEAL BEDS	COASTAL SERIES
	BOWDEN BEDS	
	WHITE LIMESTONE	OCEANIC SERIES
	CAMBRIDGE BEDS	
	RICHMOND BEDS	BLUE MOUNTAIN SERIES
	CONGLOMERATES	
	IGNEOUS ROCKS	

### AGE

RECENT
PLEISTOCENE
PLIOCENE
MIOCENE
OLIGOCENE
EOCENE
CRETACEOUS

⑦ SITES OF SOIL PROFILE PITS



VII-13-35

Rode around eastern end of island today, - 140 miles altogether. Route was Kingston, Port Morant, Golden Grove, Amity Hall, Manchioneal, John Crow Mts., Pt. Antonio, Buff Bay, Annato Bay, Castleton, Honey Hill, and back to Kingston. Less than half of the road is paved, the rest gravelled and frequently in bad condition. The first stop was

Station 8.

Along the road overlooking sea beach four miles south of Manchioneal in Portland.

Tried sweeping and got a fair assortment of Chrysomelids, Coccinellids, one Mordellid, weevils, etc.

The country is in the zone of over 100 inches of rainfall and the vegetation quite rank. The limestone is badly weathered and the actual soil thin, but every inch of surface is covered by plants or moss. The coast is frequently interrupted by small coves inlets, islands, and larger bays. These are surrounded by dense vegetation but generally not palms or mangrove.

About one mile south of Manchioneal I turned to the left on a narrow parochial road. This winds and climbs slowly inland, approaching



the John Crow Mountains, but always on the opposite side of the valley from them. It is throughout bordered by unkept bananas, with an occasional fresh clearing. The vegetation is exceedingly dense and is full of heavy vines. Every tree trunk is almost hidden by the mass of vines, some two or three inches thick, that entwine it. These vines have large leaves and flowers at considerable heights. The upper parts of the trees also carry a varied but considerable collection of epiphytes. The commonest of these was a relative of the pineapple, with large and long leaves (spineless) growing in the manner of a magney. There are many mosses and others, but I saw none of the Wild Pine which is said to occur in this way. There are large clumps of bamboos along this road. They are sometimes forty feet high and the individual stems up to four or five inches in diameter.

### Station 9.

Eight miles northwest of Manchioneal on the Spring Valley - Friendship Valley road, next to the John Crow Mts. A small new clearing among bananas, with felled trees.

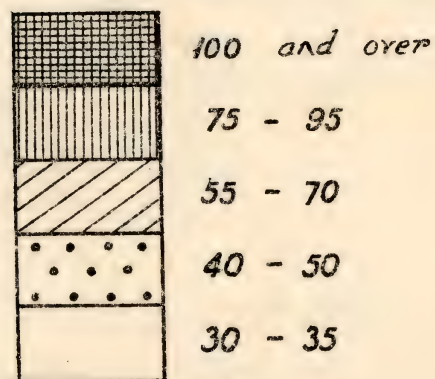
Photo #7  
#8, #9  
#10, #11



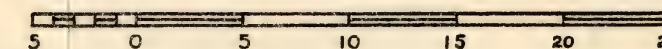
# RAINFALL MAP OF JAMAICA



AVERAGE YEARLY RAINFALL  
IN INCHES



- Miles -



Phot  
#8  
#15#



I I This place would have been worth a much longer stay. A little night collecting with light trap and lantern would seem to be worth trying. Sweeping was even more productive than at Station 8.

Sta. 9. A.

A beautiful black and white weevil was present and many Cassididae, especially.

Sta. 9. B.

Under chips and bark of the stumps of recently felled trees found a large number of one species of <sup>(175)</sup>Staph, with at least one specimen of <sup>(5)</sup>Tachyporinae, and a few Nitidulids and small Curculionids. The vegetation is exceedingly dense and varied. Vines are very abundant, with <sup>many</sup> kinds of bushes, quite a few flowers, and all sorts of trees.

B

I I  
Sta. 9. C.

At a point about a mile further north on the road, I found a fine glossy black Scarab. It was lying dead in the wheel <sup>back</sup>. The collection gives this specimen to what may be called "entomologist's eye." Even though dodging humps and watching the landscape I managed to see and recognize it in time to swerve out and not run over it. There were many more butterflies about, and dragon-flies, and large bugs. Much more as I remember the things in Panama.



This station of course is even more moist than the last, though I was lucky enough to miss rain.

On the road further west I passed many very beautiful small bays and coves, with islands covered with cocoanut palms. Then mangroves began to be common. No more stops were made except for gas at Port Antonio Annotto Bay. From there to Stony Hill the road is very rough and firing, but the vegetation is still quite dense.

In order to compare the various regions a brief summary of climate and rainfall is given from the paper on soil types.

There are two fairly distinct wet seasons during the year, namely, (1) May and June, and (2) September, October, and November, but all the summer months (May to November) are more or less rainy, whereas the winter months (December to April) are relatively dry. Rain usually falls in heavy mid-day showers, but the number of sunless days in a year is small. In general, a positive correlation between rainfall and elevation is indicated, an increase in height of 15 feet being accompanied by an average increase of rainfall of about one ~~foot~~ inch, at least for

elevations above 475 feet. An average annual rainfall of over 200 inches is recorded at Moore Town in Portland, and other stations within this parish frequently register rainfalls above 100 inches. The rainfall of Kingston is less than 33 inches often.

The air temperatures fluctuate only through a small range during the year and throughout the day. Temperatures above  $91^{\circ}\text{F}$ . or below  $68^{\circ}\text{F}$ . are rare in Kingston, average range about  $74^{\circ}$  to  $83^{\circ}$ .

Humidity of air is high, ranging at Kingston between 75 and 81%. In wetter districts, the humidity is maintained much nearer saturation point during rainy weather.

Prevailing winds are north-east or north-north-east in A.M., and south-east in P.M., for practically all months. The island has been visited by destructive gales on the average about once in every twelve years during the past 200 years. Hurricane weather is usually experienced in July to September, but occasional ~~blows~~ blows have occurred before June and later than October. The cyclones generally first appear in the Windward Islands, and move west-north-west at a rate of about



ten miles per hour, altering direction northwards and then north-eastwards over western Cuba to Florida.

VII-14-35

J

Sunday. Stayed home to rest and write up notes. Yesterday was pretty strenuous. Paid  $\frac{1}{3}$  for a pint of ice cream!

VII-15-35

J

We got our first pictures developed today. They are all under-exposed. I evidently ~~under~~ <sup>under</sup>-estimated the allowance necessary for the tropical sun. I'm not too well used to the exposure meter. It will be more convenient to record and comment on the pictures when each set has been developed, as follows:

#1. Rick on lawn at Magnus', Kingston. July 1, 1935. Completely out of focus. Taken particularly for the benefit of the helmet!

#2. Ruth on lawn at Magnus', Kingston. July 1, 1935. Slightly out of focus.

#3. Looking southeast from Bonell residence on hill overlooking Caymanas Estates.

July 9, 1935. Panorama of valley with #4. The day was somewhat cloudy but the sun was bright. The print does not show enough contrasts. Shows at center the old Works (sugar mill) and in right foreground the New Factory. Cane fields behind, spotted

with cocoanut palms. The Ferry River flows at foot of hill to left. The white diagonal line is the road running up to the house.

#4. Looking south from Bonell residence on hill overlooking Caymanas Estates. July 9, 1935. A continuation to right of #3. Shows cocoanut palm walk in foreground, canes behind, and part of Kingston Harbour in background.

#5. Cocoanut palm on beach at White Horses, 26 miles east of Kingston, looking west.

June 10, 1935. Intended to be chiefly a silhouette. This tree is a favorite photo subject. The "white horses" (shoals) can be seen off here.

#6. Looking down upon large landslide which destroyed 500 feet of highway, about 10 miles east of Kingston. July 10, 1935. This picture just failed to show the edge of the pavement at the top. The black object at the left is a very dense-looking green bush. This slide caused the abandonment of about a mile of fairly new road. Apparently the slide was unexpected, - it followed a very wet period. I am surprised only at the scarcity of such occurrences, as the roads are frequently almost overhung by the very soft and much weathered and discolored



limestone, or by unconsolidated gravel, etc. In road cuts no allowance is ever made for slides, either in the width of the cut or in the angle of slope of the sides. Very many of the hills appear to be held up chiefly by the vegetation.

This morning rode up to Soney Hill, down along the ridge top to Bog Walk, then to Spanish Town, and home. Stopped to sift at Station 10.

About 4 miles west of Soney Hill on road to Bog Walk. A narrow damp ravine in the banana walks.

Tried sifting dead leaves but total catch was one small Carabid and two weevils.

The country is all in bananas. At the Station 10 the rock appears to be sandstone, at least it is very granular and weathers into coarse sand. Below Bog Walk is all limestone, very discolored, and full of cavities and large caves. The rather large river has cut a rather steep canyon, the rock seems to rotten to stand. Only faint evidences of stratification occur. There are bands of a harder, more crystalline rock in the limestone.

So far I have taken ~~five~~<sup>seven</sup> rock samples from road cuts. No. 1 was from the locality of photograph #6. No. 2 was from the same place but not in place. No. 3 was from the roadside near Station 9, and No. 4 the same. No. 5 was from Station 10. No. 6 and No. 7 from a cut near Bog Walk.

The No. 1 was from the Oligocene White Limestone Series, as were also No. 3 and No. 4, and No. 6 and No. 7. No. 2 is of course unknown. No. 5 appears to be in the White Limestone area also. This is doubtful.

During the drive I passed through areas said to be formed of igneous rocks and carbonaceous shale. The fact that I noticed neither shows how well covered even the road cuts are. The limestone is everywhere used for roads. It is broken up by the natives and sold to the road builders. Even the smallest roads have been gravelled and unless kept up are quick to become quite rough. Station 10 is overlooking the Rio Pedro which joins the Rio Cobre at Bog Walk. From here down the Rio Cobre is quite large until a considerable amount of water is withdrawn in canals and ditches.

The afternoon has been spent putting away specimens, writing notes and letters, straightening accounts, etc.



VII-16-35

B B

This evening at eight thirty we found two fresh blossoms of the *Midnight Beauty*. As it only lasts a few hours we had to sketch and examine it at once. Brief description follows:

The flower is nearly nine inches long but curved into a U. It has a spread of nearly six inches with a central cup of four. It is white, with flower part greenish and lower "sepals" reddish, anthers yellow. The corolla is campanulate, with free parts as much as 1" by 3"; the outer ones narrower and indistinguishable from the lower parts. There appear to be 24 petals, but perhaps 50 of the slender lower part. All ~~are~~ seem to be part of the flower base and not at all distinct from it. The stamens are in two groups. One group forms a complete layer, one deep, on the inside of the corolla tube and attached to it up to the rim, from which they are free and  $1\frac{1}{2}$  inches long. The other group arises deeper in the tube, and they extend upwards for different distances forming a large mass with the first group, and extending down into the tube. These latter are from two to three inches long. The ends are all recurved so that the anthers, fastened by the

end, hang downwards. There must be at least a hundred stamens. The pistil is a long tube extending the whole length of the flower. It projects  $\frac{3}{4}$  of an inch above the stamens, where it is divided into eighteen stigmas,  $\frac{1}{4}$  of an inch long and slender, - white. At the base the pistil opens into a cavity which appears to be filled with a coarse powder. This flower blooms upon the edge of the leaf. ~~That is~~, the leaf is long and slender, appearing to be mere narrow expansions on the sides of the stem, and the flower grows at some point on the edge of the leaf. ~~Only one flower on each leaf. It blooms only at night and is wilted by next morning. It is said to bloom on the full moon, - and night before last was full!~~

In A.M. rode up right side of Ferry River. The road would be impassible for a car and I was finally stopped. If this was ever the main road to Spanish Town, it has suffered a lot of change since. I also went a short distance up the road that turns to the right over the hill. It was in the very worst possible condition. I didn't have time for any collecting.



VII-17-35

J J

I I

G G

I I

In A.M. rode to Gordon Town, Guava Ridge, Manis Bank, and Black Bridge over the Yallahs River. Could not cross the bridge. Found a large gray and pink ~~quartzite~~ <sup>gneiss</sup> in the road. Another case of entomologist's eye! Collected samples of half a dozen types of boulders in river bed but found no insects there. Found a dead and broken specimen of the same black scarab as at Station 9. This was at about the same place as the ~~quartzite~~ <sup>gneiss</sup>, —  
Station 11

The road one mile east of Manis Bank, near the Yallahs River.

Rock specimen No. 8 was taken on the road about half-way between Gordon Town and Guava Ridge. There are two samples. No. 9 is a set of 15 fragments of various rocks from the bed of the Yallahs River at Station 11. No. 10 is from the roadside about one mile west of Manis Bank. This formation had a very green appearance.

This area is in the region of highest rainfall — over 100 inches, but is not as densely overgrown as the part at the eastern end of the island.

The weevil mentioned above is a *Diaprepes*.  
 1-6-35.

VII-18-35

J J

I I

Photo # 13

I I

I I

G G

Started out at nine o'clock for Montego Bay. Went via Spanish Town, Bog Walk, Ewarton, Monique, Claremont, Brown's Town, Stewart Town, Clark's Town, Falmouth. First collecting was at Station 12.

Between Ewarton and Monique (5 miles south of Monique) in Parish of St. Ann. A pasture in rolling hills at 1000 ft. ± elevation.

Found one Staph, one *Ceryon*, two small scarabs, and a large series of a large scarab which burrows only two or three inches deep. Only worked one and a half piles to get all these, — (one dug out and one surface only).

Station 13.

One mile south of Monique on Ewarton Road. Cow dung at road side.

Only one Staph found.

In yellow campanulate flowers at Sta. 12 I secured four examples of Nitidulids.

Station 14.

Four miles northwest of Claremont in St. Ann. In small fungus on fallen log.

One Staph, one Forficulid, and one other <sup>lost</sup> tiny beetle.

While passing Bog Walk I kept a lookout for the Richmond Beds (shale) which are supposed to



occur there. Overlooking the river and bridge is a large rock pit which may show this formation. The country is flat beyond the town and there are no deep cuts or outcrops. As far as I know we were in the white lime stone all the rest of the time. Occasionally there was an area of very white rock, but generally it was discolored brown, being almost red at places. The beach just east of Montego Bay, like the rest of the north west coast, is protected by a coral reef. The sand is largely composed of coral fragments. A hand-lens shows at least six different kinds of Foraminifera and several other small shells. These are of course Recent and in perfect condition. I picked up samples of this sand and a few shells for Hubert G. and Mrs. J. Lloyd; also assorted coral fragments for the benefit of future Micropalaeontology students!

On the coral reef and lagoon are numerous black pelicans, smaller than the California varieties. There was also a black bird like a grebe, - too short legs to be a sandpiper. In the mangrove lagoon, however, I did see a medium sized, red-legged, sandpiper.

### Station 15.

About five miles east of Montego Bay, on the beach, in wave rows.

Just one large bug, dead and water-beaten. All along the coast roads, here and along the eastern end of the island there are many small hermit crabs carrying snail shells. They are common in the roads, withdrawing into the shells at one's approach. They occur at considerable distances from the beach, at least ten or fifteen miles, in fact, are less abundant right along the shore, apparently.

Stayed at Staffordshire Hotel.



VII-19-35

Two interesting letters in "The Queen" for September 12, 1934 (page 29), - in part, as follows:

"Isle of Wight.

"Madam, - I wonder how many people have seen a snake swallowing a fish! This unusual experience was ours at Lake Lugano.

"We were sitting one hot May morning on a wall by the side of the lake, near Portofino, when our attention was caught by something moving at the water's edge. This proved to be a large snake emerging from the water, and in its mouth was a good-sized fish held tightly round its middle. Then arose a difficulty, for steep rocks bordered the lake just at this point, and the snake, hampered by its burden, could not land and continually slipped back again into the water.

"After swimming about for some minutes, a sudden thought struck the snake - do we not hear of the wisdom of the serpent? It backed ashore and laboriously climbed the nearest rock tail foremost, slowly forcing itself up the incline until, with a flop of relief, it slid into a crevice and disappeared.

"Our sympathies were seriously divided.

"Here was a possibly deserving and certainly enterprising reptile; but fate was hard on the fish, and I for one shall not soon forget the imploring expression in that fishy eye. <sup>Yours truly,</sup>  
D.H."

Cambridge.

"Madam, - September is gossamer month, - gossamer... is the production of myriads of young spiders migrating to fresh fields..... The young spiders, wishing to travel, throw out strands of silk which are caught up by the air - even though there be no breeze perceptible to humankind. The young spiders are then borne off on the "balloons" which they have made for themselves. The word gossamer is a shortened form of goose - summer, the phenomenon usually ~~occurring~~ appearing at the time when geese were driven out on the stubbles.

"At this time the adult spiders in the garden also seem to be very active. It is claimed by many country folk that the webs are ~~spun~~ ~~wide and hung on long~~ reliable barometers. If the webs are spun wide and ~~long~~ on long strands of silk, the weather will be fine; if the webs are close and hung on very short strands, then the weather will be windy or wet, or both. The actual word



"iolwet" is derived from the Anglo-Saxon "ioffe", a spider. "Spider", in its turn, is the same as spinner or spinner.

"Yours faithfully, Rusticus"

Another letter from The Queen, February 13, 1935.

"Wendover, Bucks."

"Madam, - I had definite proof that birds of the same species can "talk" whilst on a visit to a naturalist who has made a lifelong study of birds, their language and customs.

"He told me that, after years of study of some of the commoner birds, he had come to understand what certain sounds meant, and had, in fact, proved it to his satisfaction by imitating them with conclusive results. As an example, he had for years been endeavouring to photograph a sparrow-hawk feeding her young, but had always met with failure. The bird, although building year after year in the same tree and although approached carefully day after day, always remained too wild to permit my friend to take the desired picture.

"On his approach he noticed that the adult hawks always gave forth a shrill note which was apparently a warning, and that all members of the hawk tribe used this par-

"ticular cry only when something they distrusted was in sight.

"Again, he noticed that both adult and young birds used a particular cry when searching for or desiring food.

"He therefore practised the food call, and when he considered himself "word perfect" returned to the wood openly, disturbing the parent birds, who at once flew off. He then climbed a convenient tree, and having carefully screened himself and adjusted his camera began calling plaintively for food.

"Almost at once first one and then the other parent bird arrived with food, which, by the way, the young ones, although they had not joined in his supplications, were quite ready to receive; and my friend was able to take several satisfactory photographs of a subject which for years had eluded him. Yours truly, Blanche Welles."

Pearls, in The Queen for August 22, 1934.

"Madam, - ..... The substance of a pearl is essentially the same as that which lines the interior of many shells, and is known as mother-of-pearl. The oyster or mussel forms the pearl around some microscopic parasite that has invaded his shell.



"If your pearl is smooth and round it shows that it has remained loose in the soft tissues of the oyster. Frequently, the pearl becomes attached to the inside of the shell, ~~and~~ from which it has to be cut away; if it is a round pearl, with a flat back showing where it was attached to the ~~inside~~ of the shell, it will be called a "bouton" pearl. A hollow pearl of irregular shape is called a "blister pearl."

"Solid pearls of irregular shape, due to being deposited on a rough object, are called "baroque pearls." Even today... it is not possible to make a successful imitation of a baroque pearl.

"A drop pearl is the shape of a drop of water, or pear-shaped. Seed pearls are tiny pearls no larger than many a flower seed.

"The most valuable pearls have a fine skin and a beautiful "orient", that means they have a delicate, flawless texture, and an almost translucent, clear white orient, or subdued iridescent lustre.

"A yellowish pearl is not as valuable as the white, ~~to~~ unless it is a strong real yellow; a pink or a black pearl may be extremely valuable when the orient is fine.

"A great deal of nonsense is current about

"pearls "dying" and suffering from a mysterious malady, but these calcareous excrescences of the oyster are no more liable to change than the mollusc's shell. Although they are formed of mineral and organic matter, they are dead matter, and once formed they vary so little and so slowly that the change is seldom observable. Strong acid, however, can dissolve the outer surface of a pearl and thus dim its lustre. Cleaning with a little ammonia and French chalk will restore the sheen.

"The slight friction of the human skin preserves and polishes pearls, therefore it is advisable to wear pearls rather than to put them away in a jewel box. Yours truly, Christine Ferry.

This morning left Montego Bay to make a circuit into the Cockpit Country. Passed through few towns, but the route is marked by the names of: John's Hall, Hopewell, Kensington Valley, Point, the circuit around Maddon, Vaughan's field, and Brother's Retreat, Mocho, Catadupa, Underwood, Cambridge, Montpelier, etc. The road climbs very rapidly after the first six or seven miles, until it attains the ~~top~~ top of what appears to be the rim of a great amphitheatre, twenty miles across, with a fairly even rim, and



with the bottom composed of endless hills and steep valleys, all densely forested except where bananas have been planted.

There are numerous valleys that appear to be undrained, though this particular area is drained by the Montego River and tributaries. This is part of the great limestone plateau. It has something the appearance of a completely dissected peneplain. All the higher hills are of about the same height, while all slopes are steep, and all valleys narrow. I saw only the variously colored limestone series, some quite white, others very red, or more or less stained. Some is rather crystalline and hard but most of the road cuts show badly weathered rock.

This region gets over 100 inches of rainfall, and even now, in the dry season is very damp. Except where directly exposed, this ground never dries. There seems to be little run-off. Some gutters and culverts have been provided but I could see little effect, for instance, of a normally heavy thunder-shower of yesterday afternoon. This region is on the edge of the Cockpit Country and is fairly densely inhabited. Bananas

are abundant, while the chief occupation is breaking rock for road surfacing. This is done more often by the women, sitting under rude shelters of palm leaves, with the ever-ready limestone as an inexhaustible raw-material. Search under rotting fragments of mangoes in the road yielded nothing.

### Station 16.

Midway between Mocho and Catadupa in southern St. James parish. A mountain road in dense forest.

- Photo #15*
- A Under burro dung in the road found only one small Staph and one large black Scarab.
  - B Tried sweeping along the road with some success, but beating the taller bushes and trees was much more productive. This included many Staphs (Paederinae chiefly), weevils, Chrysomelids, one Lampyrid, Locinellids, and several kinds of small beetles. Several unusual types of hoppers were present, but ants were not common. This place is fairly well isolated from habitations and I marked it for a return tonight at dusk for light work. One large gray beetle (Scarab?) buzzed about as I was emptying my aspirator. The net was not handy, so he got away!



At 5 P.M. started back into the mountains. Arrived at the place above Catadupa at about six-thirty, and immediately started setting up. Had to fill the gasoline lantern with gas and put on mantels. Spread beating net on ground and hung the electric light over it. Before I had gotten set up, I had an audience of natives; they stayed as long as I kept the light at the motor. As the lamp attracted practically nothing, I went out after fire-flies. I showed them to the natives, who then brought me several more. At about seven fifteen the electric light went out. The fuse was blown. I put in another, - one flash and that was gone too. The third didn't even flash, so I gave it up and put ~~back~~ the gasoline lantern. Still very little came, so I took a net and went to search stumps and tree-trunks. No luck at all, except more fire-flies. Seem to be four species. Didn't see any of the Electric Elaterids (*Pyrophorus*) so common in Panama. They occur here in Jamaica somewhere at some time of year, as I've heard unmistakable descriptions of

Diaprepes

them from residents. So I gave this up and tried beating trees and brush. At first beat got two more of the large ~~gray and pink~~ (one yellow) beetles as at Station 11. Later got another. Also Staphs, weevils, and miscellaneous small beetles, rather similar to the ~~afternoon~~ morning catch. The locality is the same, Station 16, and I judge the elevation to be about 3000 feet. The dew was very heavy and the temperature lower than I've seen since last spring, - almost too chilly for comfortable riding in a light shirt and no sleeves!

VII-20-35

Photo #16.

Destination today was to be Mandeville. Went via Lucea, Glasgow, Morgan's Bridge, Savanna La Mar, Black River, Middle Quarters, Tacovia, and Santa Cruz. Reached Mandeville so early that I decided to come on to Kingston, via Porus, May Pen, Old Harbour, and Spanish Town. Arrived at 6:30 P.M. The road is paved all the way from Porus.

#### Station 17.

Ten miles west of Montego Bay on road to Lucea, near beach. A dead hawk in the road yielded about a dozen *Crochilus macellorum*, but nothing else.



A little farther on I stopped to try my luck in a pasture but found nothing to work on! Over the mountains and down to Savanna-La-Mar through mostly cultivated areas, bananas chiefly, with quite a few mangoes, and a little cane.

### Station 18.

Highway about 10 miles east of Mandeville. One large scarab seen rolling  $\frac{1}{2}$  inch ball of horse-dung. Secured it.

VII-21-35 Sunday. Too tired to go out at all. Caught a few more of the common brown scarabs flying to the light on the veranda.

VII-22-35 Did some errands and wrote notes.

VII-23-35 At 3 P.M. started out in Oscar's Taxi to go back to the good locality ~~at~~ near Manchioneal. Went via Stony Hill, Buff Bay, and Port Antonio, returning by Amity Hall, Morant Bay, etc.

Sta. 9. D At station 9, as before, arrived at 7:30 P.M. and immediately set out the gasoline lantern. ~~Did~~

I While waiting caught fireflies. They were all smaller than those taken ~~at~~ on Montego Bay trip. Several species, including one specimen of *Pyrophorus*. As the light attracted almost nothing I took to beating and sweeping. The former was poor, the latter fair. Got one big spider.

VII-24-35

J

VII-25-35

J

Photo #17

Rather tired today. Took a vacation. Ruth found a few things under boards, etc. in the yard. We also found a baby blackbird which had dropped from the nest.

At 7 A.M. went up to Soldier's Home at South Camp to join Mrs. Bonell on a picnic to the north side of the island. About forty soldiers went in two trucks and I drove Mrs. Bonell's car. We picked up Margorie at Farm II and then went via Spanish Town, Bog Walk, Linstead, Moneague, Ewarton, Fern Gully, Linn's River, Roaring River Falls, Christopher's Lane. Here we spent the day, returning late via St. Ann's Bay and a road which comes back in above Fern Gully. On the way home we burned out our head lights near Bog Walk and had to follow another car into Spanish Town. Got home about 11:30 P.M.

At the beach many of the soldiers went in bathing. Several of them came back to camp with some tiny black thing like shivers in their feet. They called them "sea-eggs" and are supposed to be the spines of what is described as a flat sea urchin or sand dollar, with short barbed spines. I wasn't able to see one but I have seen dead urchins of small size.



VII-26-35

In morning went to see about reservations.  
Met young man that collects butterflies.  
Told me to try collecting near Bath.

After lunch rode to Lerry (Bonell residence  
in Manchester) via Spanish Town and Porus.

The caretaker got his man to dig under cow  
dung, and we got fifteen  $\pm$  of the black Scarabs,  
as before. After an early dinner I went out  
into the woods for fireflies and "blinkies".  
The fireflies are brilliant but very small and  
apparently different from either of the pre-  
vious lots. I also got four or five of the very  
brilliant and swift-flying St. Pyrophorus.  
When I got back to the house Miss Savarian  
had caught eight or nine more that flew into  
the house.

Miss Savarian has copies of No. 1 and No. 2 <sup>and No. 3</sup> of the  
Jamaica Naturalist, 1927 and 1928<sup>1928</sup>, respectively.  
No. 1 gives names of the large Scarab I've found.  
Phaenocarpa sulcata Drury (P. bebbul =). Notes  
on habits are indefinite. Nos. 2 and 3 contain  
notes on mosses, snakes, Peripatus, mammals,  
shells, etc.

Snakes have been abundant on the island but  
are now practically extinct (<sup>crying</sup> ~~due~~ to mongoose).  
Two are recorded that were eight or nine

feet long, but none were venomous (?).

Black snake (Bromia ater), Yellow boa (Epicrates  
inornatus), Spotted Chimney snake (Leimadophis  
~~collilaemus~~), Two-headed snake (Typhlops  
jamaicensis), Pardaline snake (Tropidophis maculata),  
and a crested snake (possibly a legless lizard).  
Mammals include seals, whales, bats, rodents,  
Alco, "a mule dog-like creature, a household pet of  
the Arawaks, now said to be extinct; 1 Capromys or  
Cony; 1 Manatus or manatee; 4 Mus; 1 Chilonycteris;  
2 Molossus; 1 Nyctinomus; 1 Reithronycteris; and the  
introduced (1872) Herpestis mungo or mongoose.

My first hint of a Cerambycid came today  
when Miss Savarian showed me a letter  
identifying a specimen of "Birdling Beetle"  
as Anicidius cingulata.

The Phaenocarpa we found were in loose soil about  
3 inches deep, beneath a place where there  
had obviously once been a pile of dung.  
One of the little brown Scarabs so common around  
lights was found in same situation, - also, several  
larvae. Miss Savarian said that these <sup>Phaenocarpa</sup> are  
much smaller than usual, - she used to  
see them about twice as large (or more).  
However, at another time she complained  
of her memory, so it might be an error.



VII-27-35 Breakfast at 7 o'clock. Started out at eight to collect in a pasture. This and yesterday's collecting were at Station 19.

Vicinity of Kerry, Bonell's residence near Balaclava, north of Mandeville in Manchester. Steep rolling hills, forested but with occasional grassy slopes. Used only for pasture.

John, the head pen-man, went with me and used his machete to great advantage. We attacked numerous rotten logs, but found only larvae, "forky-leggers", ~~and~~ tailless whip-scorpions, spiders, one scorpion, etc. After two hours we finally found four or five Passalids, several very large larvae, and a few tiny Bruchids in a specially large log. On the same log was one small rather dry fungus, which yielded several series of beetles but no Staphs. <sup>B</sup> Bark - 4 Staphs.

After lunch I went to see the Oxford Cave, two miles north-east of Balaclava. It is a limestone cavern and apparently is quite large. A cold breeze blows out of it continually. I hope to explore it with good lamps sometime if we get to come back here for another period later on.

Photo #19

The second lot of photographs turned out better than the first.

#7. Ruins of a stone house along the road south of Manchioneal in parish of Portland. Slightly out of focus, - doesn't show much. VII-13-35.

#8. A cove near Priestman's River, about ten miles north of Manchioneal, in the parish of Portland. July 13, 1935.

#9. A palm-covered island near Boston Bay, on road between Manchioneal and Port Antonio, in parish of Portland. July 13, 1935.

#10. A typical mangrove plant in a shallow water bay near Turtle Crawl Harbour, south of Port Antonio, in parish of Portland. July 13, 1935.

#11. Two types of parasites or epiphytes on a tree at Station 9, in mountains west of Manchioneal, in Portland Parish. July 13, 1935. The lower one is somewhat similar to a pineapple plant, while one of the upper ones has large rounded leaves.

#12. Horned bull, imported Indian breed, near Bog Walk. July 15, 1935. This is the finest specimen I have seen. There are said to be two types of Indian cattle in the island, and they are fairly common. They are easily distinguished by the grey color.



VII-28-35

Sunday. Started early for Bath in St. Thomas, to get as near Cuna Cuna Pass country as possible. Followed a new road north from Bath for five miles into the hills, then walked about two miles farther along a trail.

### Station 20.

• Six miles north of Bath in Parish of St. Thomas. In hills at end of banana walks.

Found another of the large grey and yellow weevils dead in the path. Tried working several logs but got little besides millipedes. Did also some sweeping and beating, with very little success. Fruit in path yielded nothing. <sup>Jungles</sup> 500 ft.

Passed through several different rock series and took samples. Not a very successful day, but this is a good area to return to and will repay a hard-work stop.

Two species of Peripatus are known from the island and both are said to occur in this region (known as Beacon Hill). They are P. edwardsii Guiling and P. jamaicensis Gbm. & Ckl. The former is said to be dark above in color and to range widely throughout the West Indies. The latter is reddish-brown with white-tipped antennae and is confined to this island. They are about the same size, but the latter has more legs. The young of both species

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are said to be born fully developed and capable of independent existence. Their food consists of small insects and other minute animals, which they capture by ejecting viscid saliva over them. Spent the day putting away specimens, packing rock samples, getting the motorcycle to the dock.

The weather has gotten quite a bit warmer.

Packing, etc. Boat sailed at 12. Midnight.

Colombian s.s. Pastores. We had to be satisfied with a tiny cabin, usually unused, because of the crowded condition of the boat.

Boat docked at Port Antonio early today to take on bananas. This is a very pretty bay and city, being more tropical-appearing than most. The cruise passengers went for a ride in the powered life-boat, - some went fishing out on the reef. This is a double harbour, each side complete and protected, with a narrow but deep channel. Sailed at 2 P.M.

A "Rags and Tatters Dinner" attracted us very little, for we both were feeling a little wobbly. It's only a few hours trip to Port au Prince so an early rise will be necessary and we make up for it by turning in early.



## Additional notes on Jamaica - in retrospect.

I I

The three localities at which I have collected fire-flies seem to yield different types. In St. James above Catadupa most were of large size, perhaps Photinus pallens, which is said to be confined to the hills. The light emitted was moderately bright but of short duration. Above Manchioneal in Portland parish the species were smaller, about three-eighths to one-half inch, with a longer period of light-producing. At Lerry in Manchester parish they were still smaller but seemed to be much brighter and to stay alight longer. These may belong to Pygolampis.

The luminous click-beetle so common at Lerry and other places is Pyrophorus plagiophthalmus. It is common near cane fields and is said to fly in thousands over the fields, the whole company flashing brilliantly in unison. I did not have the pleasure of verifying this, though I heard it from several sources. The larvae are said to be predaceous on the "white grubs" which are such a serious pest of sugar-cane.

Among the large and showy beetles recorded from the island are Stenodonta damicaria, Ptychoderes trilineatus, and Gynastus hercules.

The latter is said to be rare, but none of them have been seen by me.

Summary of insects known from Jamaica: Ants, forty species; including the Fire Ant, the related Crematogaster brevispinosa Mayr. which nests in orange trees and feeds on the destructive Black Scale; a leaf-cutting ant, Apha jamacensis; and six species of house ants. Mosquitoes, 40 to 50 species; the troublesome ones are <sup>Anopheles</sup> Aedes and Wannataenia, species of ~~Anopheles~~ being malaria carriers; some breed in water contained in the parasitic plants growing high up on the trees; one sea-shore form breeds in crab holes in brackish water but does not bite man! Flies, two midges that are a great nuisance at times, ten Tabanids; two bot-flies. Orthoptera, Mantids; a green locustid; Neonocephalus nigrolimbatus; twelve sp. of cockroaches; several crickets. Dragonflies, fifty species.Ticks, six species, one attacking fawns, one frogs, remainder domestic animals. Moths & butterflies, good collecting but number of sp. less than on mainland; 97 sp. The honey. (Geocapromys browni) is the only indigenous mammal (except bats). A Rice Rat, thirty bats including Vampyrus spectrum with 30 inch wing spread, are found. The bats are common in caves, but some live only in houses and rarer ones only in trees.



Birds, 52 species are peculiar to Jamaica, 57 others known to occur continually, and 52 others occasionally.

Turkey Vultures are very common, and one Hawk occurs, the Jamaica Red-Tail. I think I saw one or two near Beacon Hill, near Bath. There was also a hawk dead in the road near Lucea, but I failed to notice any red colouring.

Fish, 331 ~~fish~~ species <sup>were</sup> known in 1892; 117 Crustacea listed in 1897, (Decapods only).

Reptiles; 14 frogs, one fresh-water turtle, one crocodile (*Crocodilus auctus*), nineteen lizards, and five snakes.

The lizards and snakes that live on the ground are now all rare, owing to the mongoose.

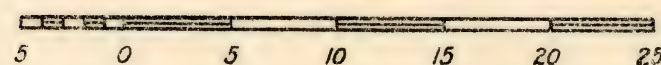
Land shells; 500 species of land & fresh-water mollusca.



MAP OF  
**JAMAICA**



— Miles —





VIII-1-35

Arrived at Port au Prince about 7:30 A.M. Satisfied the Immigration officers, had breakfast, and went ashore. We were met by a Mr. Wolley representing the Hotel Sans Souci. He got our baggage ashore and down to the Customs House at the foot of the pier, where previous communications from our State Department enabled us to pass without any inspection. He then took us up to the hotel and got us established. Then he took me back down to get the motorcycle. It came off with our baggage and <sup>was</sup> admitted free. We went to the Police Station where Wolley is well known and got the necessary licenses in a short time. At 11 AM I went to call on the American Consul, where I found some mail and learned of the necessity of obtaining a Permit de Séjour if staying longer than two weeks, and also of the ~~necessity~~ advisability of carrying a letter of introduction from the head of the Guard (local army). All businesses and offices close here at 1:30, and as the day was very hot, we spent the afternoon trying to keep cool. In the evening Mr. Barnes, the manager of the hotel invited us to go for a ride up the one paved road in the republic. We were accompanied by a student from Clark ~~State~~ University.



who is here working on his Master's Thesis. His name is Fairchild and his thesis on agricultural geography. On the way we stopped at the home of Dr. Barker of the Service Technique at Camien. We stayed there for half an hour and had an opportunity to learn something of the conditions in the country. Barker is a botanist. I was a little surprised to learn that the country has been overrun with naturalists from the States. Many have come from the Smithsonian, where from Am. Mus. Nat. Hist., Mus. Comp. Zool., etc., etc.

(for VII-2-35 see  
after VIII-3-35)

VIII-3-35

Carlington seems to have been the last entomologist. This morning rode out to Camien to the Agriculture School. The road is rough and dusty and not very pleasant. It was just market day and crowds of people on burras were on the road. Luckily very few cars came along to stir up the dust. The Service occupies a large three-story concrete building. Dr. Barker introduced me to Andrie Audant, the entomologist, who is a native. We looked over the beetle collections and discussed the country from point of view of collecting. Several trips were outlined, and I was glad to see that camping-out is quite feasible. However, no water is to be trusted, even in the towns, the roads are poor at best

and frequently impassable to vehicles, and the distances are too great for one-day round-trips. In the afternoon cleaned up bottles and jars, and tried to forget the heat.

VII-2-35

Went down at 8:30 to the office of the Guard, with a letter from the American Consul to Col. Calixte. He gave me (amid many "a-hunk's!") a letter to the commanders of all Guard branches throughout the island, requesting that they give any help they can. Then I had my picture taken and went to the American Legation. ~~Later~~ Yesterday just after I got home from the Consulate I had a phone call from the Legation which intimated I had gone to the wrong office. So I went in today and talked for an hour with two nice young men. They had some advice to give but no further formalities to suggest. Then I went to the Department of the Interior and applied for the Permit de Séjour. It won't be delivered until Ruth gets her pictures and also gets a Permit. In the afternoon I put on some old clothes and worked on the motorcycle. The bottom of the front chain guard had been dented considerably and the rear chain needed adjusting. Otherwise a gasoline bath was all that was necessary.



From the Consulate I received a small information sheet with a few items of interest. The area of the republic is about 10,290 sq. miles, occupying about one-third of the island of Hispaniola. At Port-au-Prince the annual mean temperature is 81 degrees F. and the daily temperature range averages 19° F. There is a spring and an autumn rainy season, rarely exceeding 100" annually. Large areas are arid and sterile. Mountains are rugged and rise to maximum of 8790'. Water courses are many, rivers few! Forests mostly destroyed. Population estimated at 2,650,000. Port-au-Prince about 100,000, no other town over 15,000. 90% are negroes. The third set of photographs arrived just before we left Kingston. They are listed here.

#13. Bermuda Lily just starting to bloom, from Magnus' Veranda, July 18, 1935.

#14. Bogue Islands in Montego Bay, from a hill to the south. (See #15), July 19, 1935.

#15. Same as #14. July 19, 1935. This was taken at same time as #14, which was taken without setting the shutter and aperture.

#16. Looking east from road ten miles south of Lucea in parish of Hanover. Similar to the Cockpit Country. July 20, 1935. This the limestone plateau country.

#17. Roaring River Falls, in parish of St. Ann. July 25, 1935. A full-sized palm tree in the foreground. There must be quite a large volume of water going over here. It is a favorite subject and tourist place.

#18. Negative exposed to light. No picture.

VIII-4-35

Drove up road from Port-au-Prince to Kenscoff via Pétionville. It is very rough and rather steep. Too rough to keep up speed in second gear, so I had to stay in low, - result, overheating. It took two hours to get to Kenscoff which is only twenty miles or so. Motor was so hot then that I returned without getting to the top of the ridge. Had to come down in low so it took another two hours. The hills are rather dry, partly cultivated and with some bananas. Saw quite a few butterflies and dragonflies, but no beetles. In the road I found a dead tarantula that must have had a spread of three inches. It was broken beyond repair.

I

VIII-5-35

In P.M. walked down into town with Ruth to get her picture taken for her Permit de Séjour. Then came home in a taxi for 20 cents. The rates for hiring cars seem to be rather high, but in the city only 10¢ a piece.



VIII-6-35

Started at 9:15 AM for 3-day trip to south-east corner of Haiti. Route was from Port-au-Prince through Croix des Bouquets, Ganthier, Fond Parisien, Fond Verrettes to top of pass on road to Bodarie. The distance is about 65 miles, but it took over seven hours to make the trip. This was owing to the condition of the "road" and the steep grades which heated the motor so that I had to stop frequently to let it cool. As far as Fond Parisienne the road is fairly flat and is near to the Etang Saumatre which lies on the boundary between Haiti and the Dominican Republic. This region is part of the so-called Cul de Sac plain. In two places the rather poor unkept road had been flooded by streams of large gravel, which came in from the side and covered the road for 100 feet and 200 yards respectively. These were difficult to cross and required a little road-building. From Fond Parisien the road climbs rapidly up the side of a valley, switches back over a ridge, down a short dugway on a new section of road, and along a dry river bottom for ten miles to Fond Verrettes at about 3000 ft. elevation. This is the last outpost of the Guard d'Haiti and

the end of the telephone line. Along the road I made several stops to collect in dung with some success. A small species of Canthos was abundant; also Aphodius, a large species of Ceryon, and a few Staphs that looked like Anyselus. I found two of the Canthos rolling a ball of dung in the road. I didn't have time to watch to see if they were really cooperating or merely both trying to remove the ball for themselves. From Fond Verrettes the road apparently is rarely travelled by anything but horses and mules. Even these frequently follow shorter paths along the floor of the valleys. The road rapidly rises to 4000 ft, at which point it becomes practically a dugway on the east <sup>end</sup> side of the Massif de la Selle, overlooking a large valley containing the Lago de Enriquillo. This lake lies entirely within the Dominican Republic but the boundary runs along its edge at the foot of the mountains. A wonderful view can be had from here, with the lake far beneath and high mountains in the background. The lake itself appears to be very shallow; at present a large sand-bar crosses it diagonally from



one corner to the other. From here the road is merely a narrow ledge excavated from the steep slopes with no attempt at smoothing the surface or coning up the exposed rock. Gradually it gets into the pine belt and one is surprised a little to see ferns and many other "jungle" plants growing beneath the tall scraggly pines. The latter average eight or ten inches in diameter, frequently have no branches for fifty feet with a small "head" at the top. The needles are rather sparse on the branches, and the whole forest is anything but dense or dark no matter how close the trees stand. I drove off the road a ways to conceal the motor, made a bed of fern fronds and the canvas motorcycle cover, ate my rationed supper, and started out with the lantern to see if I could attract anything to the light. I am beginning to think that the lantern is too bright. I sometimes catch things that fly against my light-colored shirt but usually nothing comes to the light directly. This time I caught two large June beetles flying about, but nothing came to the light itself. The weather was rather cool

up here at about 6000 feet, but there were a few fireflies about. I got at least two and then turned in expecting to do better the next night. At 5:30 next morning I was awakened by a tremendous cawing, and looked out to find about two dozen large black crows sitting all around in the tops of the pines and screaming at me with all their might. Occasionally they would caw in unison, but one or two would not keep time and soon spoiled it. Finally most of them left, but kept up their racket in other parts of the forest. On the previous evening I had seen several small flocks of parrots, rather small and green, but not as noisy as the crows. There was also a large dove which made a sound like a turtle dove, but with three notes like a whip-poor-will. The night was quite cool, and, though I slept in my clothes with a wadded blanket and rolled up in the canvas, I was a little chilly. I had plenty of water in the side-car, but the lunch I brought was a little small for three days, and rationed out came to one egg, two small sandwiches, and a banana per meal.



VIII-7-35

The sun was rather late in rising this morning because of a hill between and the cold kept me in bed till it came up, so a really early rise failed to materialize. However, I was on my way by seven, starting off in a westerly direction up the hill toward the Morne de la Selle which is the highest mountain in the range. I followed a path used by the natives, though I couldn't tell where they could go on it or what the purpose. At least fifty of them passed during the next two hours. There is no water available at this elevation so they must line down below in the valleys. Horse and burro dung in the path yielded quite a few things. The same things as found in the road yesterday <sup>out</sup>  
Station 21. (VIII-6-35)

The road about midway between Fond Parizien and Fond Verettes. Rather barren foot hills with some native cultivation. Collected only in dung in the roadway.

Sta. 21, A.

Up above however, the Staphs were more abundant and not restricted to a single species. The majority seemed to be Oxytelus, but I think there were a couple of Xantholini, and several very small ones that appeared

Sta. 22, B.

25 Staphs

Sta. 22, C.

to be Tachyporini but may have been Allochormae instead. Most of these things were beneath the dung rather than in it. I didn't have a seine but spread out the soil on a cloth and picked things up with the aspirator. I then tried fallen logs. The very rotten ones yielded numerous specimens of what appear to be Aphodius at a glance. They were quite deep in the wood sometimes, and I believe I got the pupae also. Practically nothing else was found except a few ants. There were tunnels of round-headed borers occasionally but nothing in them. I saw little evidence of bark-borers of any kind. I found practically nothing under bark. Sweeping among the ferns and plants under the pines in the open forest yielded very little but beating of the plants along the edge of the jungle where the pines are scarcer yielded perhaps the best collecting of the trip so far. I stayed here about an hour, getting a nice series of the large Paederus, a few of the small slender Paederids, a large Elaeaterid, quite a few weevils, a great many small spiders, a few Chrysomelids, Coccinellids, etc., etc. This locality is —



Station 22.

Near the top the pass on road between Fond Verettes and Bodarie. A sparse pine forest near the lower edge of the pine belt with the edge of the "jungle" on one side. Collecting here included the evening before, dung, logs, and beating.

The sky began to cloud over while I was beating so I started back toward camp, working along the way. When I reached camp it was starting to rain and threatened more than a light shower. As the motor was parked in a situation hard to get out of in the wet when things would be slippery, I hurriedly packed and got back to the road. This was at eleven o'clock and as there seemed little chance of any more collecting in such weather, I decided to start home on the chance that I could get through. The road down the pass is all very rocky, so, in spite of a heavy downpour, was just as easily travelled as when dry. In ten minutes I was soaked through, including helmet and boots. The rain was so thick that it was impossible to tell what there was off to the east (where the Lago de Enriquillo and mountains were).

The last ten miles into Fond Verettes the rain stopped and my shirt started to dry in spots. I stopped for lunch and was entertained by the natives in the valley below, — unseen but loudly heard, as they called back and forth, apparently without purpose or meaning, and occasionally with a bit of song. There seemed to be little going on, so they were amusing themselves with making a joyful noise! I have frequently noticed on the road that the men give their orders to mules, horses, or oxen in a loud shout, repeated frequently and loud enough to be heard half a mile, but not angrily. The entire region traversed seems to be limestone. On the pass there were many small sink holes a couple of feet in diameter and small undrained valleys were occasionally seen. Various colors of ls could be seen in road cuts but is mostly discoloured brown and usually weathers into a reddish brown clay. This soil seems to be rather fertile, however, as the natives grow corn on hillides where the soil is so thin as to leave the hill white from the exposed ~~rock~~ rock which shows through.



Passed through Fond Veretks on the "main street" which is scarcely wide enough for me to pass. The houses are all open and have little besides food for sale, though I saw a sewing-machine. Yesterday when I came through in the afternoon there must have been several hundred people in town and curious no end! Just below town it started rain again, though the word "rain" is an insult to the adequate manner in which it came down. I knew there was ford in about ten miles and was fearful that it might be too deep to cross after the rain. I picked up two samples of rock for Laddy along here, - I'll try not to lose data on them as I did so often in Jamaica. The stream was no deeper, thanks to the limestone that soaks up everything, and there was no more excitement till I got to Fond Parisien, except for a continuous light rain. Two miles west of Fond Parisien I found myself on a stretch of road made by grading up a sticky dark brown clay. After the heavy rains (which apparently were quite general over the southern part of the country) it was so sticky that it clogged up between

the wheels and fenders. I jumped off and pushed, leaving the motor running with the back wheel spinning. I finally got out fifty feet of new 7/8" rope and ~~wound~~ wound it round and round the back tire to act as a chain. It helped some and I was able to get past the worst of the mud. The rain had stopped now and as the clay dried a little it got stickier. It jammed the front wheel tight so that it skidded along without turning, and the same to the sidecar wheel. The back one dragged heavily but was kept free by the engine. After some time I found I couldn't get on without help as the drag of the side-car pulled the front wheel around so that it headed across the road. So I walked back to Fond Parisien and presented my letter from Col. Calixte at the Guard. After some trouble they found a man who could read it (it is in French) but it took him several minutes to wade through its four lines! He spoke a very little English and I managed to tell him I was stuck two miles down the road and needed a man to push me. All three guards were pleasant and accompanied me, and as



we passed through the village about six other men and a dozen boys joined us. They hadn't really understood how far, but walking means nothing to them and we soon arrived. I was beginning to get tired from walking. Everyone joined in to dig out the mud and free the wheels. Then with three or four (mostly the boys) pushing at the back of the side car we managed to advance a hundred feet. After the first the front wheel had been stuck tight. We cleaned out again and repeated the performance. The fourth time brought us to a gravelly spot where the motor got traction enough and we thought the trouble was over. When I first asked the Guard they said, "You pay?" I answered, "Yes, I pay." From them, "How much you pay?" To this I looked blank and said nothing, and they soon forgot it. So now I approached the one that understood a little English and said, "I pay you; you pay them," indicating all the rest of the gang. That seemed agreeable, so I offered him two dollars. He accepted and I handed over two of the red Haitian five gourde bills. He asked if I didn't have any

change, so I took back one of the bills and gave him a two gourde bill, two quarters, a nickel, and a ten centime piece. This made a total of \$1.97 and he seemed satisfied though apparently unable to count it up or figure out how to divide it. It was all the change I had. This Guard then asked if he could ride with me to Santhier and I let him ~~ride~~ sit on top of the sidecar. We went about half a mile and then ran into another stretch of clay. We managed to get half-way through this by running with the motor in the ditch and both pushing, with frequent stops for cleaning out the mud. I knew of nothing so tiring as trying to push something which is moving so fast you must run to keep up. When we finally gave up the attempt, I was so tired that I was ready to lie down in the mud to sleep. The Guard however was going to walk into Santhier where he lived. I looked at the map and figured it was about two miles. (The Guard was unable to tell me anything about the distance). So I decided to go with him. I managed to get a drink from my canteen but didn't have any supper. The walk was



very strong and when I had gone the two miles I began to wonder how much farther I could stand, and so foolish I had stayed behind. We kept on and on, the road wet and feeling insecure, but few hills, in the dark of course by now. Having slept very little on the ground the night before I was getting pretty ~~stiff~~ sleepy, and my boots and helmet were both about twice their normal weight on account of mud and water. When we finally got to town I figured we had come five miles and I verified this next morning. At the Guard house they gave me a bed, a wall bunk with steel frame and stiff sagging spring. I had carried my own blanket from the motorcycle and spread it over the springs. They gave me a pillow. I was so tired that I slept soundly and only awakened once to see that the stars were out and the storm over. I had no supper and no water after the five mile walk, so when I got to bed I had a very unpleasant taste in my mouth and a slight unrest in the stomach. My clothes were still wet and the night cool but with the blanket I managed and was dry when I woke.

VIII-8-35

By six the sun was up and I followed shortly. Most of the Guards had slept in their clothes as I did, some on straight wooden benches in preference to the wall racks. I was faced with the five mile return walk to the motor before breakfast and didn't have the heart to start it without a drink. The water they had only tasted fair and no doubt was unsafe but one glass helped some and I started out. When I had walked a little less than a mile I was overtaken by a car full of natives, including the Guard who was with me the night before. They stopped and I hung on the running-board, but so tired that I wasn't always sure I could stay on. When we reached the motor ~~we~~ I got off and so did the Guard. He scraped mud out of the fenders while I sat by the roadside without energy enough to help. The road had dried considerably during the night and we were able to go on without more trouble. This time I put him on the seat and rode on the gas tank myself. When we got to Santhier I gave him the other five gourds bill, got my blanket from the Guard



house, and set out for home. Just outside of town I stopped for breakfast, but I was ~~so~~ so hungry that I didn't dare to eat much. ~~On the~~ Two hard-boiled eggs seemed to be the easiest to digest so I ate them. It was good to be back to the water again too. A little farther on I stopped at a stream to wash a little of the mud from the clutch pedal and gear shift lever, etc. The rest of the road was cut up by cars in the mud but I managed alright, having no trouble with the two rocky places as it was now downhill. Just as I got to the main road I ran out of gas and had to empty into the tank the remains of the spare five gallons I carried. I also ate another egg! Had to ford one fair-sized stream but managed it alright. Arrived at the hotel about ten PM too tired even to remember to lock the sidecar. The trip had been about 120 miles and had taken six gallons, — only 20 miles to the gallon! More than two thirds of the distance was in low or second gear. The rest of the day I was too tired to move from bed, but was very hungry and managed to eat quite a bit.

VIII-9-35

J

Recovering from strenuous trip of the last three days. Don't remember ever having been so tired before. My muscles are still sore but I don't feel as tired now. Wrote up the notes, and read the "Unpublished diaries of Mark Twain" in Cosmopolitan for August 1935. Mr. Fairchild has obtained from the Public Works Department a copy of the geological report on Haili by Woodring, etc. \$2.50 in paper. From Barker he got a copy of the latter's Flora of Haili (also \$2.00, bd.). Barker told me he might be able to get a copy of the former, and I may get a copy of the latter as it appears to be a good example of taxonomy. The P.W.D. gave him the road map for 50¢, and the American Consul gave me one for nothing. Scraped motorcycle in AM and washed it in PM. Mud was caked in fenders and around transmission. Bottom of front chain guard is somewhat dented in. Changed wheels to keep wear on tires even, putting new one on front, front one on rear, and rear on spare rack. The rear one was noticeably worn but not as badly as I expected it to be. The front tire and sidecar tire seemed as good as new. Took sidecar off for a day or two.

VIII-10-35

J



VIII-11-35

J

I

Got a very late start for Kencroff and Furcy on top of the ridge south of Port-au-Prince. Left motor at foot of trail in Kencroff and walked about a mile and a half to the top, that is, the pass. Furcy is a mile or two further at about same elevation. Tried sweeping and beating with good success at Station 23.

Along trail to Furcy,  $1\frac{1}{2}$  miles south (above) Kencroff, south of Port-au-Prince. Steep hills with patches of brush, grassy slopes used for pasture. Few pines at summit.

Obtained two very beautiful Lycids, two species of Cassidids, the same large grey and red weevil as in Jamaica, two large Elaterids, several of what appeared at a glance to be fireflies, several small black Mordellids, brilliantly coloured leaf-hoppers, several small weevils, one red species of Coccinellid, a small Staph or two, and numerous minute beetles, etc.

<sup>(10)</sup>  
In working dung I found many Staphs. Seem to be mostly Oxytelinae, one Philonthus, and perhaps a couple of Xantholininae. Also took several tiny Cereyons, and Aphodius. A large Canthon seems to be the chief dung-beetle here. Every pile has a few and they are

frequently seen or heard flying along just above the ground. If one sits down to work at a particular pile, one or two are sure to fly in and alight within reach. When a pile is found in just the right condition, rather dry, it simply teems with them. But the minute the pile is disturbed there arises a distinct low rustling sound which lasts about a minute. This is caused ~~by~~ by the beetles escaping downward into the sod beneath, their powerful legs scraping against the grass. The combined sound from such a large number (must be at least a hundred frequently) is audible for a distance of several feet.

This region contains more familiar-looking plants than any I've seen yet. There are pines (*Pinus occidentalis*), dandelion, wild radish, mulleins, ~~not of course~~ some kind of berry, and of course many strange ones. The whole area from here to Port-au-Prince is white limestone (Eocene).

Every night do a little collecting here in the hotel lobby. A small brown scarab is common, and tonight got a fine Forficulid about 1's long, spotted by Mr. Barnes, manager.



VIII-12-35

J

Mr. Barnes drove us out to see a sisal fibre mill. It is on a property in which he has some sort of interest, between Bon Repos and Montet at the foot of the mountains on the north side of the Plaine du Cul de Sac. The sisal plant is somewhat similar to the maguey but without lateral ~~spines~~ <sup>spines</sup> on the leaves. When crushed, the leaves yield long white fibres very similar to hemp (many are over two feet long and are not easily broken by hand). This is a very small mill, run by a 40 horsepower diesel engine, and putting out about five bales of 500 lbs. each daily. The fibre is worth 4 cents a lb. at present.

In this same area we saw many of the blackbirds with the thick upper bill. I believe these are the *Sturnella* Blackbirds. They were common in Jamaica also but in both places are sometimes called crows. Jamaica also has a plain-billed blackbird - the Jamaica Blackbird.

This afternoon brought accounts up to date and find that we have spent practically half of our year's income in 2½ months! Our expenses other than board and room are going to be much less here than they were in Jamaica, it's a good thing!

VIII-13-35

J

Tried to start out early today and got off about 8:15. Went along coast through Kussier and Teogane and then south a short distance beyond Trouin on the road to Jacmel. The elevation is said to be about 1000 ft. but I didn't notice much climb.

### Station 24.

Vicinity of Trouin, between Teogane and Jacmel. A low pass between two small rivers. Brushy river bottom.

Tried beating and sweeping but got little except four of the large grey and red weevils and a large series of a smaller black weevil.

- A Under stones found a three-inch centipede, two spiders, and one tiny Staph. The dung yielded quite a few <sup>(10)</sup> Staphs that appear to be chiefly *Agathidium*. Apparently two species of *Cantharis*, an *Aphodius*, and a large *Sphaeridius* also. The day was hot and threatening and I'm afraid I didn't work very hard. The natives were rather numerous and I'm still shy about collecting in certain situations when I have an audience. The ride home is rather tiring as the road seems better than it is and invites a speed which nearly puts one in the ditch.



VIII-14-35

J

Had a little battery trouble yesterday and today. Something caused a discharge. I find that the generator is set up to the limit, but I got a rent battery for the side-car to prevent any real trouble. Also adjusted the valve tappets. ~~Both~~ <sup>Both</sup> exhaust ones were a trifle too loose. I think one valve must be sticking a little but I can't be sure.

Put the sidecar back on and prepared for an overnight trip tomorrow, weather permitting.

c

Tried to get a summary of geologic features from Woodring's Geology of the Republic of Haiti, but it's too detailed and specific.

From the tables of monthly rainfall averages I worked out the following plan showing annual rainfall. It is frankly based on insufficient data, but probably gives the general arrangement.

Mr. Fairchild says that Dr. Barker is certain that the Cul-de-Sac Plain receives at least 40 inches a year, but all records show it to be nearer 30 inches. He thinks 40 is necessary for the cotton which grows there. Mr. Fairchild also believes that the southwestern area of over 100 inches reaches to the coast, as coffee is grown there and requires this much. This last is far from conclusive.



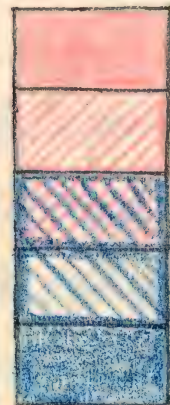


VIII-14-35

J

C

# AVERAGE YEARLY RAINFALL IN INCHES



100 and over  
80 - 99  
60 - 79  
40 - 59  
20 - 39





VIII-15-35

Started out for the northern part of the republic. Route was from Port-au-Prince through St. Marc, Dessalines, Bonain, to Ennery, from where I expected to reach three mountain ranges.

About 15 miles south of St. Marc I stopped to collect in dung along the road. It had attracted my attention because it was a line with small black *Scarabs* who were rolling away small masses of the dung in every direction. I found a few *Staphs* and *Ceryons*, and several dozen of the white-tailed *Canthons*. As I drove on I frequently saw little balls of dung rolling rapidly along the ground and had glimpses of the little black fellows under them, usually in pairs. I soon stopped again to get a larger series, with good success. This was at

Station 25.

Fifteen miles south of St. Marc on main road to Port-au-Prince. A narrow strip of land between the mountains and the sea. Dung only.

Station 26.

Five miles south of St. Marc. Near a small undrained lake but country somewhat less arid than at Sta. 25.

Collected again in dung in road. Found



several kinds of Staphs and some Ceryons, but no Scarabs, - at least no Canthons.

Here I ate my lunch and somewhere between here and Lanaine I lost my keys. Without access to my water, food, blanket, gasoline, ~~the~~ papers, or collecting equipment, and knowing I could get no assistance in any of these native villages, the only thing to do was to come home. I kept looking for the keys but didn't see them. It was 3:30 when I turned back so it had taken 6½ hours to go, but I came back in the rain and halfway after dark in five hours. If all my trips are interrupted by rain this way I won't have much to show for a month in Haiti.

There isn't a hotel in the country outside of Port-au-Prince, and nowhere where one can trust the water. It's all right to be independent in good weather, but rather hard in heavy rains, especially as I have no protection at all while riding, and could hardly make camp in the rain.

The rainy season (summer) is just started but in the wetter areas, where the collecting is best, it rains practically every day.

VIII-16-35

J

Spent the day writing letters and making the rainfall map. Wrote to Martha and Daddy and gave our next address to Mrs. Willis.

VIII-17-35

J

Another day without collecting. Motorcycle is still moped but very dirty. Washed it and greased it. Went swimming with Jack Ruane and Johnny Fairchild at the Pétionville Club beach near Bizoton, four miles west of Port-au-Prince. Ruth didn't feel like going in, but Johnny and I swam out to the float, - about two hundred yards. There were numerous small jellyfish, harmless to the hand but causing painful stings on softer parts of the body. While swimming back I felt several on my arms, and one on my cheek was rather painful. The water was lukewarm - not below 80°.

VIII-18-35

J

Tried to duplicate sidcar padlock in hardware stores. None had any Yale locks. There is no locksmith in the republic! Finally borrowed a hacksaw and cut lock off. Repacked sidcar, cleaned bottles, etc. Have decided that real early departures are only way to escape afternoon rains. That will allow me ten hours without the danger of getting stuck.



VIII-19-35 Monday. Went to bank to cash Traveler's Cheque. They charge 60¢ for cashing 100. Then went to Lykes S. S. Co. Office to make reservations and get ticket for Ruth. No one there seemed to know much, but said no tickets would be sold till the day before sailing as they can't be sure of places. Got mail at American Consulate and Mr. Brewer wrote a letter to the ~~Ex~~ Am. Cons. in Santo Domingo explaining that Ruth would arrive without passport, etc. Went to Interior Department to get our overdue Permits de Séjour. They had not yet been signed by the secretary and there is no telling if they ever will.

VIII-20-35 Left call for 5 A.M. Got away at 6, but stopped to put air in the tires in town. Went through Leogane, Grand Goave, Petit-Goave, Miragoane and stopped along the road about midway between the latter and St. Michel du Sud. Collected at Station 27.

Fine miles south of Miragoane on road from Port-au-Prince to Les Cayes. Along path in thin woods and on hill overlooking corn fields and brush.

I A In a large fungus that had apparently been dropped by the path were the usual *Scolytid*? and the tiny ( $\frac{1}{3}$  mm.) beetles found once before.  
J B No *Staphs* were found. In dung were eight *Can-*  
J C *thous*, two *Aphodius*, and one *Saprinus*. Sweeping and beating gave one *Hispid*, two or more species of *Bruchid*, a *Tenebrionid*, a small weevil, several spiders, and numerous tiny beetles.  
J Returned along same route to Station 28.

I Just east of Grand Goave on road to Port-au-Pr.  
J Collected in dung, and took one spider from web. And then home, - all on 3 gallons of gas.

VIII-21-35 Wednesday. This is the Haitian independence day, Evacuation day. A holiday of course. Wrote letters and notes. Johnny Fairchild left on Pastores with a mahogany table, a large rug, a case of rum, a native drum, etc., etc., etc.!

VIII-22-35 Went out to Damien in A.M. Gave letter of introduction to Audant, returned Geology book, and got all the *Staphs* (14) from the collection on loan. In afternoon washed bottles and made a new cyanide jar. Can't do a very good job till I get some Plaster of Paris. Three weeks is about the life of one made with blotting-paper.



(at station 23)

VIII-23-35

J

Up at 5 this morning and got started before 6 for Kenacoff and Furey. Took the road that goes beyond Kenacoff about a mile, and then followed trail. Left motorcycle at 7:30. Trail is level and takes about five miles to get to Furey, whereas the direct trail over the ridge is only 2½ miles. This ~~one~~ was laid out as a road to Furey and Robin, but was never completed. I collected by sweeping and beating along the path and down the ridges a few yards. About a mile from Furey where spring-water runs in the path I caught the Ciindelids flying. Near here the upper path joins the lower and I followed it to the top, then followed the ridge to east. Found good collecting in the brush on top of the hill. A fruit tree of some sort and blackberry bushes were best. Farther on I worked along for three-quarters of an hour. Then down the very steep face of the hill to the motor. Water and lunch, and then home — 2:30 when I arrived.

Sta. 23.C.

Photo # 21

Sta. 23.D.

Sta. 23.E

The list of the days catch follows: Including — 24 Canthos, 4 Nisiterids, 32 brown Aphodius, 8 large Sphaeridiids and 7 Ceryon, 94 Staphs (Cryptelinae, Philonthi, and Allochariniae chiefly).

F. Staph.

1 Melolontha dead on the ground on top of the hill. Beating and sweeping — Staphs — 1 Paederus, and 1 Allochara, 6 ½" Ciindela, 1 "4" same, 6 Lampyrids (3 species), 11 Elaterids, 2 Nitidulids (2 species), 15 Mordellids (3 species), 25 Aede-merids (2 species), 46 Coccinelloids (6 species), 3 very slender gray ½" Cerambycids, 15 Chrysomelids (3 species), 16 Bruchids, 2 of the large yellow-striped weevils and 38 other weevils (13 species), 1 large walking stick, 1 green Katydid, 1 grasshopper, 1 small Mantid, 1 bristly red bee-fly, 2 horseflies, 3 bees, 2 wasps, 5 roaches, 5 earwigs, 31 leaf or tree-hoppers (12 species), 3 or 4 bugs, 26 assorted spiders, and about 50 miscellaneous small beetles.

J 1

This is the best days collecting I've had yet. None hopes that one of the Ciindelids is the one that Darlington is reported to have considered new. Audant says that this was one of Darlington's favorite localities. There is no question that the early morning is the most pleasant time to collect and I have seen nothing to indicate it isn't just as productive.

But I still get the taste of gasoline in the water and in my lunch! Terrible!



VIII-24-35 Another of the days that seems to be wasted. Finished notes and wrote letters in morning. Planned to do an errand or two but didn't do any. Took a portrait photo of the motorcycle. The carbon removing etc. that I did the other day made a new motor of it. I didn't have to stop once on the  $1\frac{1}{2}$  hour climb to Kenscoff to cool the engine, and no knocks at all. It was full of the latter before. This was the largest repair I had done to it. I've adjusted the rear chain twice, cleaned carburetor, repaired a broken snubber, changed wheels to equalize wear, changed oil once, greased about once every  $1\frac{1}{2}$  weeks, and once disassembled quite a bit to scrape mud. The half case of oil that I brought with me is nearly gone and last week I put in a gallon of Aviation Texaco #120. They didn't know the S.A.E. number. I have no idea of my mileage because I have no speedometer, but it can't be very high on the average, - perhaps 30 miles, because of the roughness of the roads which force second and low-gear speeds. Some places are plenty steep for the side-car load.

VIII-25-35

Sunday. Mr. Barnes took us on a hike above Pétionville. We drove about two miles above P. on the Kenscoff road and then climbed to the northward to the top of the ridge. On the trail up we found five or six of the black canthons with white spot on the extremity of the abdomen.

### Station 29.

One mile west of Pétionville, on a ridge known as Morne l'Hopital. Elevation 2500 feet. The view from the top is very fine, extending Bonane Island across Port-au-Prince and Cul-de-sac Plain to the Etang Saumâtre and the mountains of the Dominican Republic behind. In the other direction (south) can be seen Kenscoff, much higher, on the next ridge.

I found some fresh fungus on an avocado tree, but only one Staph larva was there. Later on I caught a fine bee or wasp. Also a weevil that landed on my leg. We climbed about 500 or 600 feet in all and walked not more than two miles. The party consisted besides Ruth and me, and Mr. Barnes of Jack Ruane, Mr. McCarthy, and Mr. Haber, a <sup>Philco</sup> radio man.

Photo #23



Mr. Barnes' brown Packard sedan is about the same age as Daddy's car. We had some misgivings, however, as the left front tire is practically in shreds. Mr. Barnes said he wouldn't bother to change it if it did give out, but there's a limit to how far one will drive in on any flat, especially in a heavy, old Packard. He had predicted rain for 6:30 P.M. (previous evening) but it started in just as we returned at 1:30.

Last night Mr. Barnes took the same bunch of us (practically the total occupants of the hotel) to see if we could find a native bambouk. We drove out past Bigon (about 10 P.M.) but it was very quiet. Finally we did get a chance to look in on some sort of a religious dance. It was not the regular performance - the women only took part, dressed in white, and carrying small torches. Afterwards we tried along John Brown Street, which is part of the Pétionville Road. Nothing at all here. Perhaps a week of holidays has tired them out, - Tuesday, Wednesday, Thursday were all big nights.

VIII-26-35

Up at 5 A.M. today and went out to the vicinity of Mr. Barnes' sisal plant. There is a large pasture near by, in the middle of cotton fields. I was surprised not to find a thing in the dung except ants. These were unusually abundant. Two tiny Carabids running on the ground were taken. Also one small yellowish beetle beneath dry dung.

Then drove around past the sisal plant to the first foothills where there are the ruins of an old barracks and guardhouse. Here on what was once a veranda I found quite a bit of horse manure. This is Station 30.

Culdesac Plaine

15 miles northeast of Port-au-Prince, in the vicinity of Mr. Barnes' sisal mill. This is off the main road from Port-au-Prince to Cabaret, and is marked 'Montet' on the map. By spreading out the ~~sand~~ under the dung on a cloth and using an aspirator, I took quite a few small Hapshs of two species. The ants swarm in the dung itself and seem to keep out everything else. I tried at several other places without seeing a single beetle. A light green



I  
B  
bush with very long spines (? mesquite?) that was in bloom attracted some large  
humbees. I got one of these, a yellow-jacket, and one Bruchid. This bush is exceedingly common in the plains. It hordes all the fields and invades them rapidly unless kept back.

I  
Tried sweeping along the road, etc. with only fair success. The total was: 9 weevils (3 species), 18 flea-beetles (1 species), 2 Coccinellids and 2 larvae, 3 other tiny beetles, 9 tree-hoppers, 1 small mantis, 3 bugs, 1 fly, and 1 spider.

Yesterday on the hike I found a whip-scorpion (with tail) being dragged off by ants. This is the first one I've ever seen.

J  
Most of the plain is under cultivation and I could find no other places to collect, so I came back to the hotel early.

In the evening Ruth and Mrs. McCarthy took turns playing cribbage with Mr. Barnes. Each won at least once but Mr. B. took the tournament easily.

In afternoon Mr. Baker hired a little gray burro for Mrs. McCarthy to ride. It had only one ear and such wobbly-looking legs! I took a picture of Ruth sitting on it.

VIII-27-35  
J  
Ruth and I went down to see the Dominican Consul. Found out we must have permits from the Haitian Government to leave the country. Tried to get Mr. Woolley to help get the latter, but missed him somewhere. Waited at the British Legation for half an hour, then feeling ill, came back to the hotel. Was sick all afternoon and stayed in bed. No fever this morning but I felt very tired. Stayed in bed all day, but got up for dinner in the evening.

VIII-28-35  
J  
Spent the morning writing letters. Seven of them. Mr. Woolley didn't show up and I didn't feel like going out myself.

VIII-29-35  
J  
Mr. Woolley took my passport down to have the permit added. Later he took me down to get it, but the Minister of the Interior hadn't signed it yet, so we have to wait. Ruth spent the whole morning typing the letters I wrote yesterday. In the afternoon I unpacked the sidecar and laid everything out to air. The spare gasoline permeates everything and gives an almost unbearable stench. I get into my lunch, my drinking water, my blanket, my papers, and the camera!



VIII-31-35 Have another set of pictures now.

#19. Entrance to Oxford Cane, four miles N.E. of Balaclava in parish of Manchester. VII-27-35

#20. Looking north from road to Kenscoff about a mile below the sawn. VIII-23-35

To show the rounded nature of the ridges. I'm sure it must have been fogged by the developer.

#21. The only signpost in Haiti! At the end of the proposed road Kenscoff to Turcy, one mile beyond Kenscoff. VIII-23-35. Background of white limestone. The road ends here for lack of a ten-foot bridge.

#22. The motorcycle and its inscription. Taken at Sans Souci Hotel. VIII-24-35.

#23. Port-au-Prince city and bay, looking north from ridge west of Pétionville. VIII-25-35. The Cul-de-Sac Plain is to extreme right; St. Marc would be across the bay to the north. The Hotel Sans Souci is distinguishable to right of center in midst of the city.

#24. Ruth, on the scariest-looking donkey in Sawn. VIII-26-35. Very cloudy, but the trouble was chiefly focus. The donkey hardly seemed able to hold up his own weight. One ear was missing entirely.





IX-1-35

Up at 5 A.M. Final packing and arrangement of sidecar, breakfast, and goodbyes kept me till seven, and then a stop for gas air, so that I got out of town at 7:15. Headed for Santo Domingo via Mirabelais, Tascaobas, Belladere, Comendador, San Juan, Azua, Bani, and San Cristobal.

Station 31.

Near Mirabelais on road to Tascaobas. Duzg. The climb from the Cul-de-sac Plain up over the mountains to Mirabelais is steep and very rough, but I doubt if it is 3000 feet, as Mr. Barnes thought. I stopped once to cool motor. From Tascaobas the road follows ridges in what are practically badlands. Occasionally there are rivers, one of them so large as to give me serious doubts of crossing it. I stalled the motor in the middle, but it started readily and didn't give any trouble. The back wheel dug in and I was stuck in spite of the motor. I got a man and two boys to push and finally the four of us (and the engine) pushed it out. I gave them two 50 centime pieces. Satisfied. The water was well over my boot tops, though I didn't get into it (that is, I was able to ride over the deepest parts). Two or three smaller rivers were almost as hard

to cross, and muddy banks didn't help. It had rained hard the day before. At Belladere, near the border, I stopped to show my "permit to leave" to the police (Garde d'Haiti). I registered and then went on. A little further another man stopped me but couldn't speak any English. After stewing about for ten minutes he let me go on. Fifteen miles farther on was Comendador, where there is a nice Customs House built across the road. I stopped and the officer addressed me in Spanish. He seemed puzzled when we failed to understand each other. Then he seemed to think of something and went to get a slip of paper with typewriting. He showed it to me and I found it was in Spanish. But I saw Dr. Richard E. Blackwelder in it and indicated that I was the same. He seemed pleased and acted as if that was enough, - I could proceed. But to be sure, I got out my passport and showed him my name in it. During the whole five minutes I didn't even get off the motor. I went on feeling almost ashamed to enter a country so easily, almost without even identification!



From here on the road kept getting better and all streams were bridged. From San Juan to Agua the road followed a large river in a large plain. This could be properly called a desert as only mesquite and cactus in much evidence. It is very rocky, - mostly showing conglomerates and muds, etc. In this stretch the road began to get wash-boarded. It kept getting worse practically to Santo Domingo. I tried to speed over the tops but almost lost control as I couldn't keep either my feet or my hands where they belonged. By riding on the extreme left of the road, often clear off the edge, I managed to get along with only the sidecar jiggling. My arms and hands soon got so tired that I doubted if I could keep it up to S.D. At one place between Bani and San Cristobal they are building a large bridge. It is nearly finished but I had to take the temporary road, over one bridge and fording two smaller branches of the river. Just outside on San Cristobal is a fine piece of concrete! I speeded up hopefully, but in about a mile it gave way to washboard again. By this time it was dark so I had to be more careful of chuck-holes and pedestrians.

About fifteen miles out of S.D. I came to a good asphalt surface. It was a great relief and lasted clear into town. After asking the way to the Hotel Senor several times, I found myself in the general vicinity but couldn't pick out the boarding-house. Then I saw the U.S. coat-of-arms on a house. It turned out to be the American Legation. They showed me the place almost across the street and I finally pulled in at 7<sup>45</sup>. Madame Senor gave me a room at the rear of the first floor and I ate dinner at a separate table so that I wouldn't have to change my clothes. This is supposed to be the best place in town, but I'm glad Ruth stayed in Haiti. This room is not very clean and the air is damp so that things do not dry out readily. This makes it seem even less clean. It doesn't pretend to be a hotel, - no stationery, guests all eat at the same table, linen isn't replaced every day, etc., etc. I went to bed right away and slept fairly well. The room is screened and I used a mosquito-bar but still one or two got at me. Screens seem to be quite a luxury in these countries, but a second rate job is not of great use.



IX-2-35

Went to the Legation where I talked chiefly with the Secretary Mr. Jas. E. Santenbein. The minister was also there but I didn't get his name. After some talking I went down to the American Consulate. Mr. Reincke, the Consul, was very nice and sent a young man to go with me to the government offices to get licenses. After beating around until 1 o'clock we managed to get a license plate and a temporary driver's license. Mr. Santenbein invited me to lunch with him and one of the younger men at the Consulate. They live together in a very nice cottage, and we had a pleasant time. I also managed to borrow a copy of the blue-print map which is the only available one of the Republic. I can probably keep it. The rest of the afternoon I spent writing to Ruth and unpacking the sidecar. The can of spare gasoline had leaked three or four gallons all over everything. I spread the things out and left it open all night. In the evening I got a bunch of old Liberty with a story. The case of the Curious Bride, one of the Perry Mason stories. I was bothered more by mosquitoes but only found one in the net this morning.

IX-3-35

Today is a national holiday, or rather a day of mourning. Five years ago, I believe, on this day was the great hurricane which practically demolished the city, killing several thousand people. I decided to start for Santiago after lunch, so spent the morning greasing and packing the motorcycle. Instead of taking everything with me, I put in only what I expected to need and left the rest with Mrs. Senior. The Legation called up to say that had a package for me. It came in the diplomatic pouch. It was from Ed and contained four of the large mailing tubes and inside of these, I suppose, jars and bottles. Then the Consulate reported that they had a letter, - one from Mother and one for Ruth from P.D. About twelve o'clock I began to feel a little bit under the weather. I thought I was just hungry. I also thought that if I was going to be ill again I'd rather be in a good hotel in Santiago than in a bum boarding house. I got away at 1<sup>45</sup> feeling a little woozy, but felt OK while riding. The pavement extends about 25 miles out of Santo Domingo and then gives way to washboard again. All the way I seemed to be just on the



edge of a storm but didn't actually run into any rain. From Moca to Santiago there is a fine pavement. It was very welcome. I arrived at 5<sup>30</sup>, making it in 3<sup>34</sup> hours. The Hotel Mercedes is almost the only building in town over two stories high. It is four. It is reputed to be the best hotel in the Republic, and I'd be surprised to find as good a one anywhere else. The ground floor is mostly taken up with the dining room which seats 150. There are uniformed porters and waiters, and a very complete table service. Every person has an individual NE water bottle from the refrigerator. The second floor and third contain approximately fifty rooms, of which about two-thirds have private bath. There is running water in every room, and hot bath or shower available. The fourth floor is a single room about sixty feet square, and open on all sides. It is practically a roof garden, and it gives a fine view of the city. I felt a little sick after dinner, perhaps had a little fever, so I went to bed immediately. Didn't sleep well, in spite of the Simmons Mattress. I was too tired to sample the hot bath.

IX-4-35

J

Felt better this morning but decided to rest all day. Found this a rather boring occupation! There are no American magazines or papers in town, and only one or two radios. (Damn this pen!) It's hard to get along at meals without speaking some Spanish. At breakfast I managed to get fruit-juice and scrambled eggs, but had to turn down ~~so~~ beef steak, etc. For lunch they wished to give me a five course dinner, but I managed to keep down to soup, chicken, and orange juice. In P.M. went walking to see the town. Passed the church and climbed up the hill to the radio station where there is a good view. Then I came back and wrote letters, and notes. About three o'clock I met in the lobby Mr. Haines who had been at the Hotel Sans Souci last week. He remembered me and we talked a while. He drove over on Sunday too, started at four o'clock. Had trouble on the way and I must have passed him as he reached S.D. later than I. It was nice to meet another American. He talks a little pig, but is pleasant anyway. The clerk took me over to get a copy of a map issued by a local tobacco company. It covers the Rep. and seems very good.



I wrote another letter to Ruth. Am told that Air Mail goes from here to Santo Domingo every day. It is a brand new service. After dinner Mr. Haines suggested we go to a movie. It was in Spanish, on a small screen, and rather stirring. I got to bed about ten o'clock and slept fairly well. Everyone uses mosquito bars here in the hotel, but they don't suck in so I'm sure any mosquito wouldn't be fooled. However, the nights are cool and I haven't been bothered at all.

IX-5-35 Rode along the road to Porto Plata to Station 32.

10 miles north of Santiago de las Capalleras on the road to Pto. Plata. Just into the mountains of the ~~Sierra~~ Cordillera Septentrional.

The region is pretty well cultivated but I climbed a ridge that was wild. Tried sweeping and beating but got practically nothing. In a rotten branch stump on a large tree found three Staphs and several small myriapods. The large myriapod was on the ground under another tree. In everment found two or three Staphs and one large white-tailed Canthon. Burro dung yielded nothing.

After lunch rode out to Station 33.

3 miles west of Santiago on road to <sup>San Jose</sup> Monte de las Mayas. A large pasture, yam field, & bananas.

A In cow dung found quite a few Staphs, a few Histerids, and several Sphaeridiins. Under dry piles a Tetracha was common, and also a half-inch Carabid.

I was interrupted several times by men coming up to see what I was doing. I showed them the brilliant Tetrachas and then they'd leave. Finally the whole bunch came back,

father, two sons, and two others. One of the sons <sup>(Luis Malignardi)</sup> spoke a little English. He said it was their pasture, and said they had some sort

B of bug in their potatoes. I went over and they dug up some yams that were heavily infested with a little black and red weevil. I got a nice series of larvae, pupae, & imagos.

C Then they dug up a fine big Scarantula. They were very much afraid of it and didn't want me to approach it. I put my foot on it and then eased it into a jar.

It fills it pretty completely. Brought the fellow back into town. He wants me to take a trip with him later. They also got







was supposed to have in Santo Domingo. About two weeks ago was their first rain in six months. There are quite a few clouds every day, but usually no rain. Since I've been here, it sprinkled only once, - this noon. This town is full of shoe-shine boys. They're the most conspicuous thing in town, - after the buses. I think they must shine each other's shoes for a living, as they don't seem to do a rushing business and there seldom are any tourists. I was amazed to see a regular Fifth Avenue double-decker bus go by the hotel. It was shortly followed by a small specimen of the double-ended coaches, and later by several smaller new buses. I find that they are brand new and not over likely to remain so shiny very long. On the other hand they've made the driver's responsible for all scratches, etc., and that should make a difference. They certainly seem out of place in this town where one would foresee no need for any kind of intra-city transportation.

Spent the evening as best I could and went to bed early, - 9 o'clock. A late dinner helps to make the lonesome evenings shorter.

IX-7-36

Up at 6<sup>15</sup> and got away at 7. Took the pavement toward Moca, intending to turn off to the north to Peña, where they find considerable quantities of low grade amber. I missed the road and continued to Moca and then to Salcedo and nearly to San Francisco de Macoris. Was surprised to find I had gone around forty miles. The roads were lined with people going to market. I didn't see a single place to collect and there were no roads turning off toward the mountains. All the way the roads are lined with pineapples. They are more abundant here than anywhere we've been. This region has more palms and trees than most parts of Haiti. Any trees are scarce in the latter, but here there are some fine big ones, and wood is so plentiful that they make fences of it. They put uprights every six or eight feet, then stack poles up between the pairs of uprights. It must take considerable time, but that is another thing that seems to be abundant here. One striking thing about the people is their means of attracting another's attention. They don't call or whistle or say "Hey," but invariably kiss. Even up here on the



fourth floor of the hotel I can hear them on the street incessantly. It is a little annoying at times as they do it so much. It is impossible to ignore them when they are trying to get your attention. There are a large number of very nice looking people here, even in the country, which is much more than can be said for Haiti. I think that the whole standard of living is higher too. There are some very fine looking homes here, and St. Domingo has some very nice residential districts. There are great preparations going on here at the hotel for the tourists that are to arrive tonight. There is to be a dinner-dance at 8, but I think I'll eat ahead of them. I have no clothes and I don't like to wait that long anyway. Besides as Mr. Haines remarked, the tourists won't be interested in me and therefore I'm not likely to be interested in them. I hope they're a decent bunch and not rowdies. Each large town I've passed has a large plaza near the church or in the center of town. This is well supplied with large concrete benches, upon each of which is inscribed

some such legend as In Memory of John Doe, June 10, 1904. It seems to be a regular method of commemoration. Some of them appear to be merely donated by someone during his lifetime. That is, they're not memorials but of philanthropies, so to speak.

Photo #25

In afternoon rode out on road to Monte Cristi.

#### Station 35

About 5 miles northwest of Santiago on road to Monte Cristi (Carretera Duarte). A moderate sized stream in deep cut.

- I A Searched for *Staphs* under rocks along edge of water, throwing water onto the bank but only found one (another escaped!). A few specimens of a  $\frac{1}{4}$ -inch *Carabid* showed up, but there seemed to be nothing plentifully. In dung on the sand I found one *Sphaeridiu* only. Three or four *Cicindela* were taken on the sand. Nowhere in the vicinity could I find anything else under dung. No *Staphs*, - no *Scarabs*. As I came into the hotel, beneath the back steps I found one of the nice *Cerambycids* which I found on the main staircase the evening I arrived here.



IX-8-35 Left shortly after 7 A.M. for Puerto Plata by the same road as taken on morning of IX-5-35. Stopped once to collect in dung at Station 36.

10 miles south east of Puerto Plata at point where road emerges from mountains into coastal plain. Dung only.

Found the usual white-tailed Canthos in abundance, a smaller species of same, a considerable number of Staphs, and several Ceryon. This was the farthest point I reached. The road is good. In places it is surfaced with rock rolled in, but even this is better than wash-board! This country does not seem to receive heavy rainfall, though in places there was a very rank underbrush. On the way out I had spotted a log with fungi on it, and I stopped on the way back.

### Station 37.

3 miles north of Santiago on road to Puerto Plata. A dead uprooted stump by roadside. The little white shelf-fungi yielded some of the 1/3 mm. beetles, and then a fresher piece was full of Staphs. One larger beetle which I didn't get a good look at was too quick for me and got away.

Got back to the hotel just in time for lunch. As the weather is threatening I and I ran through a shower on the pass, I decided to stay in this afternoon. Drew the outline map of the D.R. on page 135, by using the latitude and longitude lines on my large map. The tire that I repaired the other day (the spare now) is flat again, so my repair was no good. I'll have it done over before I start back. This town is plastered all over with little metal signs that read: Viva Trujillo, Todo por Trujillo, and Dios y Trujillo. Can't you imagine a presidential campaign in the states with posters: Hoorah for Roosevelt! All for Roosevelt, or God and Roosevelt!!! There was a short band concert in the park at five o'clock. They always begin and end with the national anthem. The policeman at the corner stands saluting and all approaching traffic stops. Two soldiers riding in a bus jumped out and stood at salute, then piled back in and went. Everyone in the park stands up instantly at the first chord. I went again after supper, as much to watch the people as hear the music, but stayed only till nine and then went to bed.



IX-9-35

Truth's birthday. I wrote her birthday letter several days ago, and left her present with Mr. Barnes. It was a package of stamps.

Left at 7<sup>20</sup> A.M. for San Jose de las Matas, and the road from there to San Juan. Arrived at the former and found it to be similar to Janico, set in the foothills a short distance from the Gran Cordillera Central. Could find no trace of the other road, so had to come back. Collected only in dung at

### Station 38.

Near San Jose de las Matas along road southwest of Santiago (20 miles S.W. of Santiago). Dung. Found less of the Canthons but two of the smaller species. Staphs more abundant than usual. (112)

Spent the afternoon with a sister, writing letters and notes, and inquiring about roads from the clerk. The one to San Juan has not been completed yet, working from other end. Dinner took less time than usual though I seemed to eat more. I sat in the lobby till eight, and went to bed very early, and felt sleepy. However, I tossed about till ten at least. Slept pretty well and woke up at six.

IX-10-35

### Station 39.

Santiago de los Caballeros, province de Santiago, Republica Dominicana.

Two Cerambycids flying in hotel. Also one scarab found dead on the street.

This morning took road to Moca, then turned off to left on road to Jamao. This road is in very bad condition. It was originally paved with gravel and was reasonably well graded. Went nearly to top of pass.

### Station 40.

Label Santiago

About 10 miles northeast of Moca on the road to Jamao. Sweeping and dung.

Tried sweeping here along the road and on the hillside, with practically no results.

Dung was scarce and specimens in it even more so. Finally got two of the white-tailed Canthon, several Aphrodinus, two Cereyon, and half a dozen small Staphs.

This completes my collecting in this region. It has given poor results, and I'm afraid the reason is that I didn't go about it right. It is very difficult to get around here without speaking a little Spanish. I can barely ask my way about and am unable to inquire for trails or side roads.



IX-11-35 Wednesday. Lat started on return trip to Sto. Domingo at 8:30. Came through without incident until five miles from town, when I ran out of gas. After getting a can full from a truck, I ran out again about two miles farther. Pushed the motor about three kilometers and then hailed a car from the aviation field. He towed me to the filling station. Arrived at Senior House about 1:30. Spent afternoon and evening reading old *Liber ties*. The political predictions are interesting.

No mail at either Legation or Consulate.

IX-12-35 Lat a much-needed haircut for 20 cents! Went to office of Tykes Line twice, to find out when Ruth's boat arrives. Sunday morning early. He'll let me know later. Tried to order a white suit, but tailor was out. Found another blueprint map which had been sent here for me from Foreign Office by Máximo L. Vázquez, Sub-Secretario de Estado de Relaciones Exteriores. Mr. Gantenbein of Legation lent me a copy of a book on the geology of the R. D. by Woodring, Vaughan, etc. Spent the day chiefly reading and sitting around. It seems like a long time till Sunday morning.

IX-13-35 Friday. Went to Legation, where Mr. Gantenbein found out for me that the only boats sailing next week (3 different lines) go on Tuesday. So I asked him to get our permits to leave on the Bulltine boat on that day. Went to see Mr. W. E. Pulliam, General Receiver of Customs, and presented my letter from Rowe. He gave me a memo to the Inspector that boards the boat and I took it to the Aduano. Pulliam has a home in <sup>Montreux</sup> California, and once had ambitions to go to Stanford. No mail still.

Was told of a collection of insects belonging to a Mr. Kennison, having an office next to the Consulate. Should talk with him. Several people have recommended the country west of La Vega, near town of Jarabacoa. Said to be one of the wildest parts of the island, with rank vegetation, and a passable road from La Vega. Dr. Gomez Manor, Dept. of Agriculture, Public Works Bldg., S.D. was recommended for information concerning collecting conditions.

The following summary is based on the introduction of "A Geol. Reconnaissance of the Dom. Rep." by Vaughan, Cooke, Condit, Ross, Woodring, Colkins. Maximum depth between D.R. and Puerto Rico



is 318 fathoms or about 1900 feet, while between Haiti and Cuba it is about 6000 feet. The island may be divided into northern part (greater part of the island) and southern part (s.w. peninsula and area s. of Enriquillo Basin). A third part is the plains of Seibo and Bari in the s.e. Topographic divisions are Cordillera Septentrional, Samaná Peninsula, Cibao Valley, Cordillera Central, Valley of San Juan, Azua Plain, Sierra de Neiba, Sierra de Martín García, Enriquillo Basin, Sierra de Bahoruco, southern peninsula, and the coastal plain. The Cord. Septent. is about 125 miles long, altitudes up to 4200 feet. The Samaná Pen. is about 30 miles long, a mass of fairly rugged but not high mountains. The Cibao V. extends 140 miles from Mts. Cristi to Samaná Bay, east part well watered, but west part more arid. The Cord. Central extends from extreme east to the n. mts. of Haiti. The V. of San Juan is 50 miles long, water plentiful. Azua Plain covered with cactus and mesquite. Sierra de Neiba attains elev. of nearly 4500 feet, chiefly limestone ridges. S. de M. García similar to last. Enriquillo Basin is recent ocean bottom with coral, etc. Sierra de Bahoruco are continuation of southern range of Haiti, reaching about 6000 ft. S. Penin. has heavier rainfall than most other parts, and is thickly wooded. The Coastal Pl. in east contains ex-

sensitive forests and savannahs; sugar cane is most important crop.

Lunch this noon was practically inedible. We had spaghetti and pig's kidneys, and eggs scrambled with brains! No one ate any and nothing else was talked of all afternoon. At five ~~the~~ Col. Lewis drove us down town to see the Museo Nacional. Party included Mrs. Lewis, Mr. Owen, and me, but we met Mr. Everson on the way and picked him up. Went to get something to drink and had a swell orangeade. It was practically an emulsion, being shaken in a mixer. Others had beer or rum punch. Dinner was much better, and avocados very nice.

IX-14-35

Drove out along road eastward, past San Isidro, planning to take road through Guerra and Bayaguana. Found it in too bad condition after last night's heavy rain, so came back and continued east, turning off on road to Boca Chica.

#### Station 41.

Vicinity of Boca Chica, about 22 miles east of Santo Domingo. Pasture on coral terrace. In dung found quite a few scarabs but only a few *Staphs*. Two fine spiders in one web.



Weather was settling in for an all-day rain, so I turned homeward about eleven. Found it had rained hard here and along most of the road since I left. More rains after lunch, so I read some more of last year's *Liberty's*! There isn't any wind here, so perhaps the Genevieve Lykes S.S., which Ruth is coming from Port-au-Prince, will have a smooth trip. Rain won't bother anyone.

IX-15-35

Up at 5:30 to meet Ruth's boat. Was on my way down by 6<sup>00</sup> but feared I might be late, so I took a taxi. The boat, - Genevieve Lykes, finally docked at 7<sup>00</sup>. I went aboard and Ruth introduced me to the Captain and the two or three other passengers. Mr. Feeley, the Customs Inspector was there. I mistook him for Mr. Pulliam, but he didn't say anything. The immigration officers didn't even ask to see our passport and the Customs was as easy, - thanks to Mr. Feeley. We took a taxi and sent the trunk etc. by cart. I was very hungry, but Ruth was not, but we were in time for breakfast. Spent the morning unpacking and talking. After lunch the chauffeur came to ask if we wanted to make the trip

to Seibo. On Wednesday I had told the boy at the Consulate to send a chauffeur on Sunday. He had come Wed. afternoon and I had told him to come back Sunday. Ruth felt like going, so we told him to be here at 9 A.M. for an all day trip. A few minutes later another driver came in, and proved to be the one that had come on Wednesday. He was the one we intended to go with, so we told him to come at 9 also. He arrived ~~at~~ first in the morning. ~~Before~~ <sup>After</sup> supper the Lewis's invited us to town for some ice cream. It was fairly good mustard.

IX-16-35

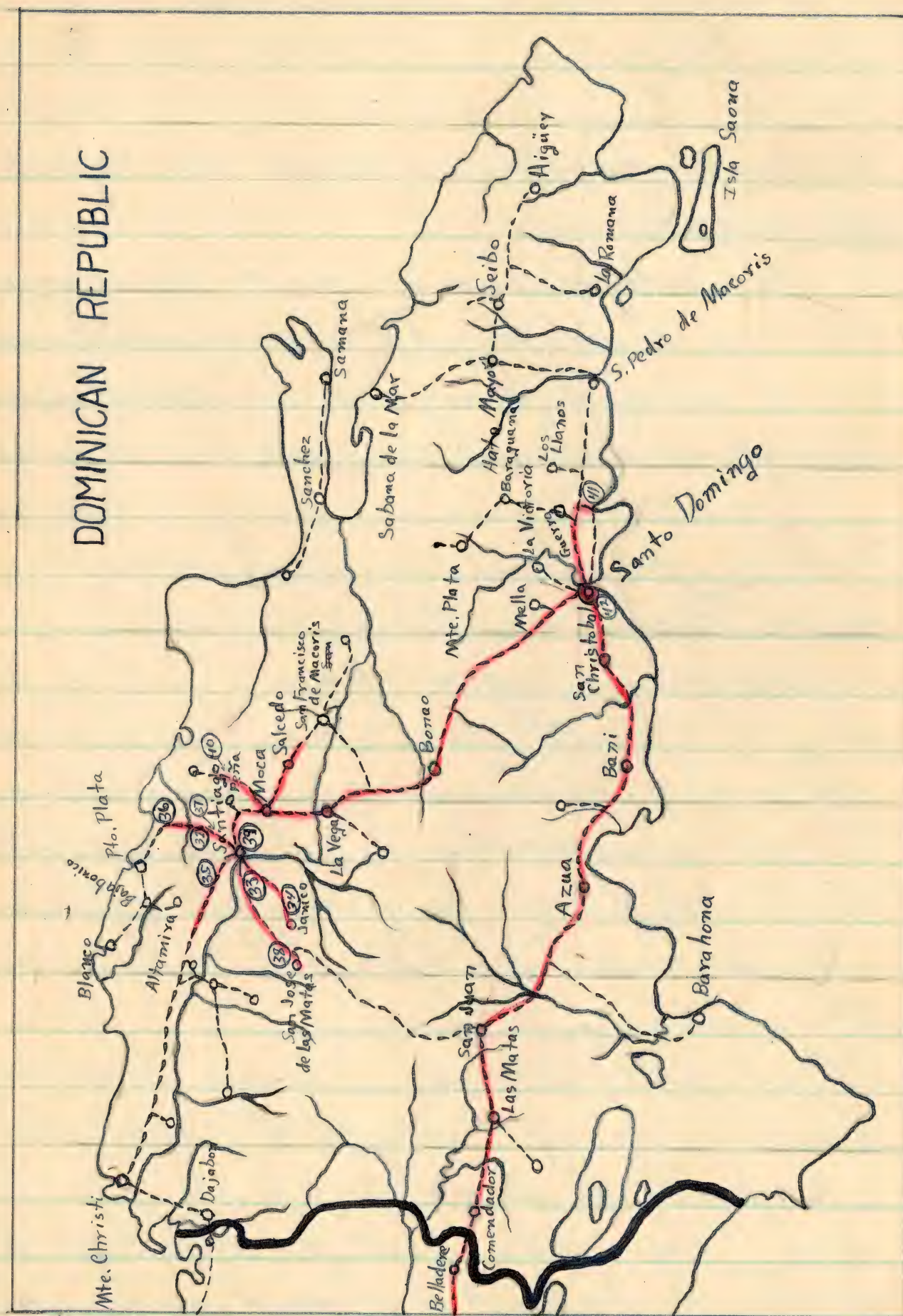
At 9 A.M. the chauffeur arrived, but Ruth didn't feel like going. The first one was very nice and would accept no tip. The other made out that he had spent money on gas and oil and we would have to go. After much argument I went down to the Consulate and he met me there. We finally settled the matter by hiring him to drive us four hours in the afternoon for 5 dollars. We went to all three of the steamship companies, to the consulate and legation, and saw some of the city besides. The Bull Line boat Catherine, on which our permits



say we are leaving, goes first to Barahona, reaching San Juan Thursday morning. The Cuba leaves at 7 AM on Tuesday and arrives in San Juan Wednesday morning. We didn't have time to have our permits changed as the offices close at noon. However, the Porto Rico line ss. Coamo leaves at 5 P.M. and arrives at San Juan at 7 AM Wednesday. So we made reservations on that, and then started packing.

IX-17-35

Went down early to get <sup>our</sup> permit changed. It took only about fifteen minutes. Then I made arrangements with the S.S. Co. for the motorcycle, and went to Mr. Pulliam to see about leaving forwarding instructions for the package from Harry Doon Co. He gave me a note to Feeley, and I finally left authority with the American Consul. Then had to pack the motorcycle in a rush, and ride it down to the dock before lunch. They charged me \$19.50 for it, while the regular auto rate is \$20.00. The Captain of the Cuba said he would take it for \$5.00! We took a taxi to the pier at 3 o'clock, and caught the 4 o'clock launch. A rough trip out, but we weathered it OK. This is a





good-sized boat, depending on passengers more than on freight. The food was excellent.

The last station in Santo Domingo is Station 42.

57 Avenida Basilar, Santo Domingo, R. D.  
Flying to the light at night. A large series of a brown scarab, ~~and~~ several ~~states~~ as Pyrophorus, and some small things.

Feel as if I have missed most of the Dominican Republic. Next time I will know where to go and how. It is not easy to get about, and large areas are not attractive because of their dryness and desert vegetation. I was treated with the greatest courtesy by all officials, and was cordially expected wherever I went.

Most of the insects I have taken here have been in dung. Very little was taken by sweeping or beating, and fungus was rare. This latter was probably partly due to the fact that I didn't get into the mountains much, where they are said to be more abundant.

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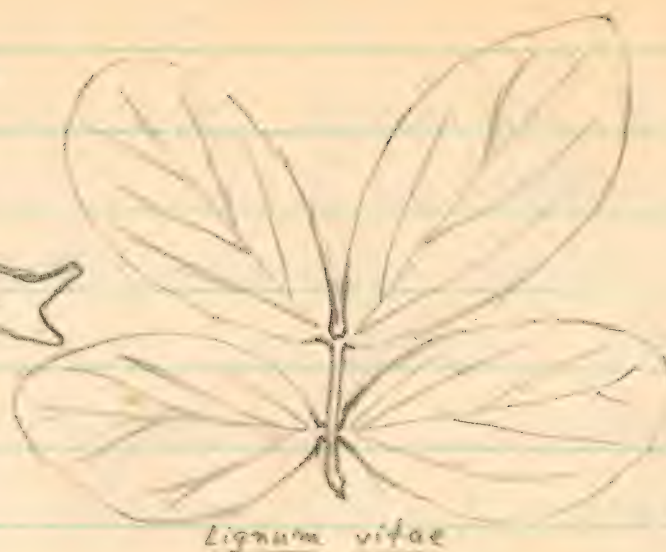
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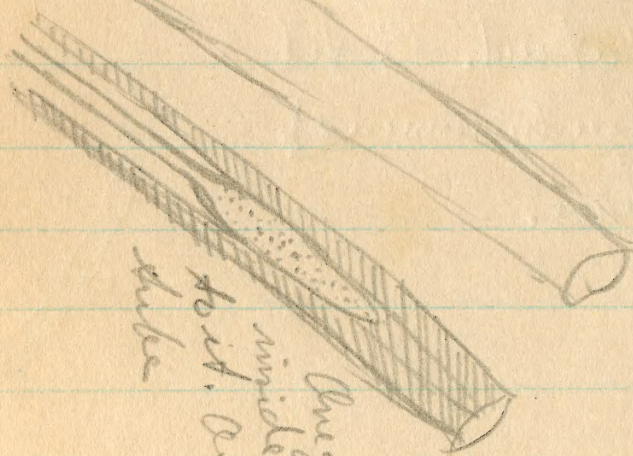


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C = climate  
G = geal  
O = ornith  
B = bot  
I = insects  
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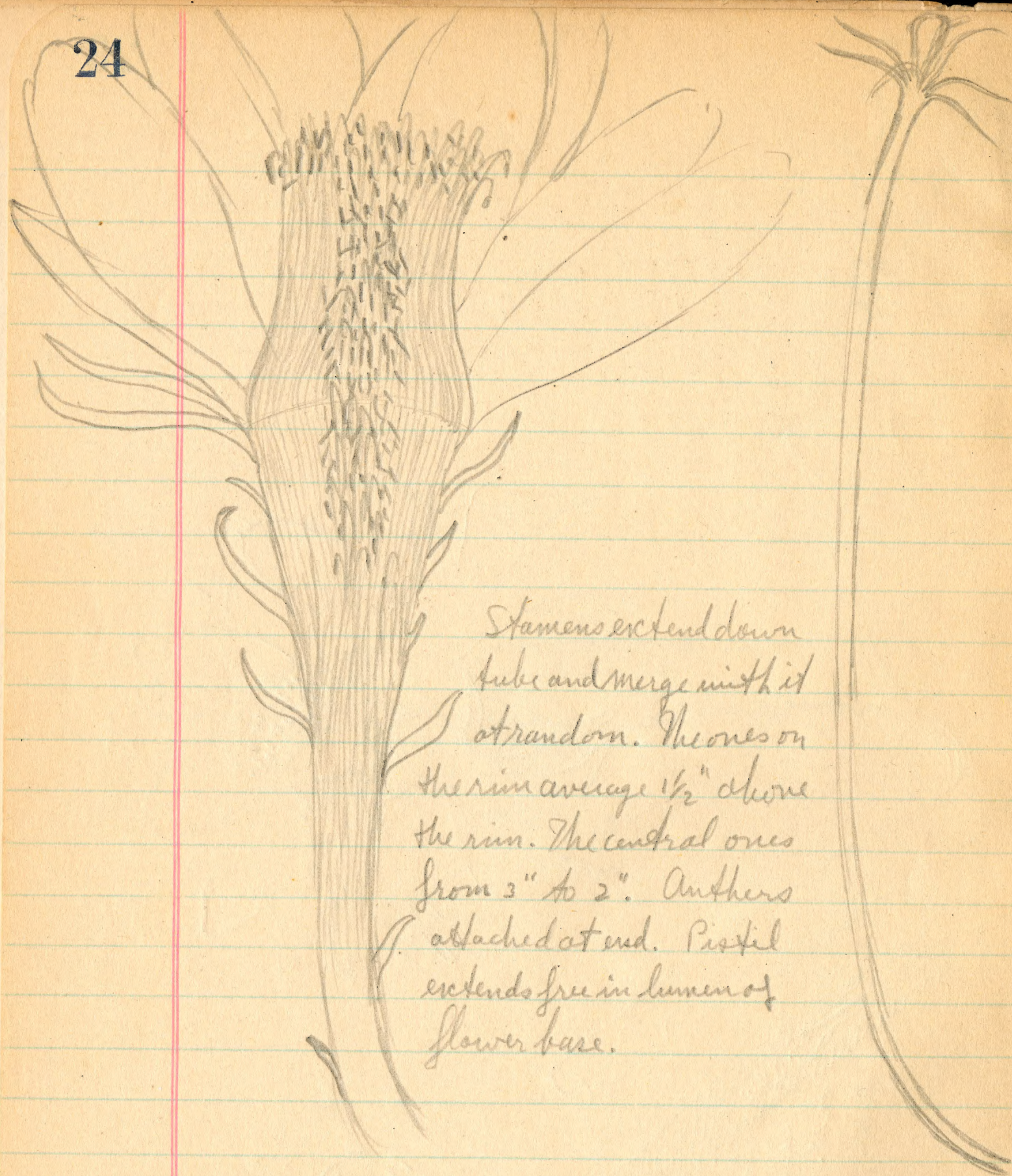


Flower in 2 parts  
large, lower layer, thick on  
inside of corolla tube, united  
to it. Other group are loose in the  
tube



petals (42)  
receptacles (50 ±)  
stamens (100 ±)  
(no chambers)  
many rods  
stigma (18)  
(united with  
tubular pistil)





Stamens extend down  
tube and merge with it  
at random. The ones on  
the rim average  $\frac{1}{2}$ " above  
the rim. The central ones  
from 3" to 2". Anthers  
attached at end. Pistil  
extends free in lumen of  
flower base.



